

SHEPHERD, HOLLY ANN, Ph.D. An Analysis of Differences in Noncognitive Factors of College Readiness of Students Before and After Participation in a University Summer Bridge Program. (2018)

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The complexity of college readiness has made it difficult to define and measure. Despite the use of standardized testing as the most convenient predictor of college readiness (Farrington et al., 2012), research encompassing a more comprehensive understanding of college readiness is gaining momentum, particularly through a college access lens (Conley, 2007; Sedlacek, 2010). Noncognitive factors, including academic behaviors, academic perseverance, academic mindsets, social skills, and learning strategies, are crucial to student performance and are shaped by a variety of factors related to internal and external environmental influences (Farrington et al., 2012). Considering ways in which students interact with an educational context can provide insights into effective interventions that enhance students' overall college readiness beyond cognitive factors (Barsalou, 2010; Conley, 2007; Nagaoka et al., 2013). Summer bridge programs are one type of pipeline intervention that aims to enhance students' college readiness (Gándara, 2002; Sablan, 2014) to aid in a student's transition to a postsecondary educational environment (Conley, 2008) and typically target underrepresented student populations (Kallison & Stader, 2012).

The purpose of this study was to determine differences in noncognitive factors of college readiness of students before and after participation in a summer bridge program. In addition to analyzing the program's outcome, this research analyzed differences of noncognitive factors of college readiness between summer bridge program participants

and incoming first-year students who were admitted to the researcher's host institution but did not participate in the summer bridge program. The participants were 57 high school graduates who applied to attend the institution hosting the summer bridge program. Participants completed the Becoming Effective Student Learners Survey (BEL-S) (Farrington, 2018), which is a survey that includes items addressing academic behaviors, academic perseverance, academic mindsets, learning strategies, and additional factors. Findings indicated that there were statistically significant differences in academic mindsets of students before and after participation in the summer bridge program ($t(9) = 3.69, p < .01$). No significant differences were found for other noncognitive factors. Additionally, no significant differences were found between summer bridge program participants and incoming first-year students who did not participate in the intervention. Academic mindsets are important to consider when addressing college readiness because they can impact a student's level of motivation and performance related to coursework (Wilson, 2006). Due to the context-dependent nature of academic mindsets, short-term interventions have the potential to develop positive mindsets through increased levels of academic and social support (Bransford, Brown, & Cocking, 2000; Credé & Kuncel, 2008; Farrington et al., 2012; Schlossberg, Waters, & Goodman, 1995), which underrepresented student populations often lack access to at the secondary education level (Attewell & Domina, 2008; Kazis, 2006; Reardon, 2011). This research study is contributing to the awareness that traditional measures of college readiness do not fully address all facets of college readiness (Sedlacek, 2010) and K-12 and postsecondary

educators can be intentional in interventions and admissions criteria when addressing college readiness (Wu, 2014).

AN ANALYSIS OF DIFFERENCES IN NONCOGNITIVE FACTORS OF COLLEGE
READINESS OF STUDENTS BEFORE AND AFTER PARTICIPATION IN A
UNIVERSITY SUMMER BRIDGE PROGRAM

by

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CHAPTER I

INTRODUCTION

The economic payoff for having a college degree compared to not having one is higher than ever (Carnevale, Rose, & Cheah, 2011) and changes in the United States economy have increased the incentives of educational attainment (Farrington et al., 2012). Despite the known correlation between education level and lifetime earnings, college completion rates have remained stagnant over the past 15 years, although there has been an increase in college enrollment (Aud et al., 2012). This phenomenon presents the question of why students who are enrolling at postsecondary educational institutions are not succeeding. There is a robust debate about all of the contributing factors, including academic preparedness. A large number of high school graduates who are enrolling at postsecondary institutions are not prepared to succeed at the college level (Kallison & Stader, 2012) and as institutions have enrolled a larger number of underrepresented students over the past decade, they have struggled to meet students' educational needs (Lopez, 2016) indicating that there is a fundamental disconnect between the needs of students and secondary and postsecondary educational institutions' ability to meet student needs (Farrington, Levenstein, & Nagaoka, 2013).

Student success is shaped by a multitude of factors and multiple levels of context that vary across social locations, including race, ethnicity, sex, and socioeconomic status (SES), intersect with group behaviors, individual traits, intentions, and academic histories

(Strayhorn, 2011), and is influenced by the level of a student's development. Student development theories addressing psychosocial, cognitive, and transitional elements focus on intellectual and behavioral growth of students as they pursue education (Evans, Forney, Guido, Patton, & Renn, 2010). Psychosocial development theory addresses developing competence, managing emotions, moving from autonomy towards interdependence, developing interpersonal relationships, establishing identity, developing purpose, and developing integrity (Chickering & Reisser, 1993). Intellectual development theory addresses different ways of approaching cognitive tasks including dualism, multiplicity, relativism, and commitment to relativism (Perry, 1999). Student transition theory describes how a transition provides an opportunity for psychological growth or decline through four stages including the situation (timing, control, and previous experience), self (demographic characteristics and psychological resources), support (types and functions), and strategies (managing stress, information seeking, and direct action) (Schlossberg et al., 1995). Concepts derived from these theories set the foundation for research on the level of developmental factors that encompass both internal changes and responses to the environment that impact student success and are influential on students' performance as they transition to a postsecondary setting (Conley, 2007). It is challenging to understand how all of these factors fit together to influence student success and research efforts have been made to further understand the term "college ready" to promote student success (Nagaoka et al., 2013) in relation to student development.

College readiness is defined as the level of preparation a student needs to enroll and succeed, without remediation, in a credit-bearing, general education course at a postsecondary institution that offers a baccalaureate degree or transfers to a baccalaureate program (Conley, 2008). Arriving at college with the academic skills, including but not limited to reasoning, research, and content knowledge, and nonacademic skills, including but not limited to self-control, self-monitoring, and interpersonal interactions necessary to be prepared to do college level coursework is one of the most important influencers on collegiate success (Jackson & Kurlaender, 2014). Although attention paid to college readiness is increasing, there is still relatively little empirical evidence on what it means for students to be “college ready” (Farrington et al., 2012).

In an effort to increase college readiness, summer bridge programs are interventions intended to provide resources and support to students the summer before their first year in college by integrating multiple contexts of college readiness into one program (Sablan, 2014) to help students aspire to, prepare for, and attain college enrollment. Through coursework and campus events, summer bridge programs aim to enhance multilayered factors that contribute to student success (Kallison & Strader, 2012). Programs typically target development in factors related to key cognitive knowledge and skills, as well as factors related to noncognitive skills including behaviors, attitudes, and mindsets (Conley, 2008). This is established through developmental coursework that promotes critical thinking, skill development, and knowledge of a college culture as well as fostering social adjustment and nurturing a sense of belonging in a campus environment (Strayhorn, 2011).

Purpose of Study

Recent research continues to acknowledge the importance of academic preparation and college readiness (Strayhorn, 2011), yet few studies have focused on components of preparedness addressing noncognitive skills (Nagaoka et al., 2013) and if students are developing these skills through summer bridge programs (Sablan, 2014). Noncognitive skills are defined as “sets of behaviors, skills, attitudes, and strategies that are crucial to academic performance in their classes, but that may not be reflected in their scores on cognitive tests” (Farrington et al., 2012, p. 2). Examples of noncognitive skills include interpersonal interactions with professors, time management, study skills, help-seeking behaviors, and self-efficacy and play a critical role in students’ success at a postsecondary institution (Farkas, 2003; Farrington et al., 2012). The purpose of the present study is to determine if recent high school graduates transitioning to college are developing noncognitive skills that contribute to their overall college readiness over the course of a summer bridge program. Data for this study were collected from a summer bridge program hosted at the researcher’s institution using a measure of noncognitive factors, the Becoming Effective Learners Student Survey (BEL-S) (Farrington, 2018). This research is beneficial to higher education because it addresses a gap in the literature related to noncognitive skills of recent high school graduates as it relates to college readiness. The research questions that guided the study are:

RQ1: Does participation in the summer bridge program affect noncognitive factors related to student college readiness?

- a. Is there a difference in academic behaviors (as measured in the BEL-S) before and after participating in the summer bridge program?
- b. Is there a difference in academic perseverance (BEL-S) before and after participating in the summer bridge program?
- c. Is there a difference in academic mindsets (BEL-S) before and after participating in the summer bridge program?
- d. Is there a difference in learning strategies (BEL-S) before and after participating in the summer bridge program?
- e. Is there a difference in additional factors (BEL-S) before and after participating in the summer bridge program?

RQ2: Is there a difference in noncognitive factors related to college readiness between students who were admitted to the institution, eligible to enroll, and attending new student orientation compared to students who were conditionally admitted to the institution based on completion of the summer bridge program?

Significance of Study

A study that focuses on the development of noncognitive factors through a short-term summer bridge program intervention is necessary to add to the growing body of research on college readiness. Most research studies to date that have addressed college readiness in an educational setting have focused on students' cognitive mastery of content, which is evident through the use of standardized test scores as a measure of college readiness (Farrington et al., 2013). There are gaps in the literature related to

specific noncognitive interventions that stakeholders in an educational environment can provide to students. As the need for educational attainment grows, interventions to aid in preparing students for postsecondary education can provide access and opportunities to students who are facing barriers. Analyzing the impact of a summer bridge program on noncognitive factors to enhance college readiness can provide information to practitioners to enhance the effectiveness and efficiency of summer bridge programs to improve educational attainment and achievement for students.

College Readiness Models

The conceptual framework of the current study is based on Conley's (2007) comprehensive college readiness model and Farrington et al.'s (2012) noncognitive framework that expands on the noncognitive components of Conley's (2007) college readiness model. They are grounded in student development concepts and based on K-12 and higher education practices.

Conley's College Readiness Model

A student's successful transition to the college environment is a function of their readiness (Conley, 2008) and heavily depends on the degree to which prior experiences have developed transferrable skills and tools necessary to meet the expectations and demands of the college environment (Bransford et al., 2000; Conley, 2008; Schlossberg et al., 1995). College readiness is defined as the level of preparation a student needs to be successful at a postsecondary institution that offers a baccalaureate degree and is demonstrated through enrolling and succeeding in a credit-bearing general education course without remediation (Conley, 2008). Conley's (2007) college readiness model

contains four constructs to describe a college-ready student: key cognitive skills, key content knowledge, key learning skills and techniques, and key transition knowledge and skills.

The first two constructs in Conley's (2007) model are based on cognitive skills. The first construct, key cognitive strategies, includes problem formulation, and problem-solving, research, reasoning, interpretation, and precision and accuracy skills. The second construct, key content knowledge, describes the foundational concepts in core subject areas that a college-ready student possesses, including areas of English, math, science, social studies, world language, and art. The remaining two constructs describe noncognitive skills of a college-ready student. First, a college-ready student exhibits key learning skills and techniques that include self-monitoring and self-control actions that promote academic success. Second, a college-ready student has key transition knowledge and skills that includes contextual, procedural, financial, cultural, and personal skills.

Conley's (2007) college readiness model highlights a holistic approach to multiple factors that contribute to a student's success at a postsecondary institution. Cognitive factors are necessary for college readiness but it is also imperative to consider noncognitive factors that impact students' long-term success to determine how these factors relate to college readiness (Nagaoka et al., 2013). Cognition is no longer constrained to the individual and "continuing to study cognition as an independent isolated module is on the fast track to obsolescence" (Barsalou, 2010, p. 325). This study focused on the areas of the model that contain noncognitive skills. In order to further understand the noncognitive components of college readiness, the study relied on the

following noncognitive framework that adds depth to Conley's (2007) college readiness model.

Noncognitive Framework

The intentional development of noncognitive factors in conjunction with the development of academic content knowledge can improve educational outcomes for students (Farrington et al., 2012) due to the interactive nature of psychosocial development and cognitive development (Barsalou, 2010; Bransford et al., 2000; Chickering & Reisser, 1993; Evans et al., 2010). Noncognitive skills that result in positive behaviors, including but not limited to completing homework, study skills, solving problems, attending class, and exhibiting time management skills are crucial for academic success (Britton & Tesser, 1991; Credé & Kuncel, 2008; Farkas, 2003; Farrington et al., 2012; Robbins, Allen, Casillas, Peterson, & Le, 2006). Student beliefs about learning, intelligence, self-control, academic tenacity, and persistence also impact behaviors that produce positive learning outcomes (Al-Ansari, 2005; Bandura & Schunk, 1981; Duckworth & Seligman, 2005; Dweck, Walton, & Cohen, 2014). In addition to these attributes, learning social skills and understanding how to navigate college as a social system can enhance a student's ability to engage in interactions to aid in the transitional process to a postsecondary setting (Conley, 2007; Myers, Brown, & Pavel, 2010; Schlossberg et al., 1995) and successfully acquire contextual knowledge (Conley, 2007). Short-term interventions that target students' psychosocial beliefs associated with noncognitive attributes have the potential to enhance a student's overall academic success

(Chickering & Reisser, 1993; Farrington et al., 2012) and positively influence college readiness (Farrington et al., 2012).

Recognizing the importance of noncognitive factors on academic performance, Farrington and colleagues (2012) sought to conceptualize these factors in a more concrete way to enhance consistency among research. Noncognitive factors are organized into five main categories (academic behaviors, academic perseverance, academic mindsets, social skills, and learning strategies) that are situated within a larger sociocultural context. The five areas of noncognitive factors are described as follows (Farrington et al., 2012) and can be measured with the BEL-S:

Academic behaviors—attending class, arriving to class prepared, actively participating in class activities, and dedicating time outside of class to studying and completing assignments

Academic perseverance—academic tenacity, grit, self-control, self-discipline, and delayed gratification

Academic mindsets—academic identity, theories of intelligence, self-efficacy, and relevance to the future

Social skills—interpersonal skills, cooperation, assertion, responsibility, and empathy

Learning strategies—metacognition, self-regulated behaviors, study skills, time management, and goal setting

Summer Bridge Programs

Due to the influential nature of environment on student development (Evans et al., 2010), it is important to understand the context in which interventions are occurring (Barsalou, 2010; Evans et al., 2010). Arnold, Lu, and Armstrong (2012) state,

Even well-designed educational interventions are not pervasive: students participate in school and college preparation programs while simultaneously experiencing other roles, settings, and relationships. Students differ according to culture and other group characteristics. Within demographic groups, individuals vary in their personal qualities and experiences. In other words, individual students respond differently to the same environmental contexts. Importantly, individuals have at least some degree of influence in choosing and shaping their environments. (p. 5)

Students selected to participate in the summer bridge program for this study attended the residential program at a public, 4-year institution located in the Southeast region of the United States. Participants were required to successfully complete the summer bridge program in order to enroll at the institution the following fall semester. Over the course of 5 weeks, students took two academic courses, attended study halls, and participated in social events. Interventions to aid in the development of noncognitive factors were embedded throughout the structure of the program to complement the academic components. For example, participants attended study hall sessions to enhance learning strategies of study skills and self-regulated learning. Participants were also encouraged to utilize positive academic behaviors such as going to class, completing homework, and studying. Participating in co-curricular and extra-curricular activities were intended to develop factors related to sense of belonging, interpersonal skills, and cooperation (D. Bland, personal communication, July 24, 2018).

The summer bridge program was designed to serve recent high school graduates who applied to the university but exhibited a deficiency in their college entrance test scores or high school grade point average (GPA). The program was intended to serve three specific purposes (D. Bland, personal communication, July 24, 2018):

1. Provide a rigorous academic experience for students who require additional academic preparation to transition from the high school classroom to the college environment.
2. Provide students the opportunity to create a network of professional resources that can assist them academically and socially as they persist at a postsecondary institution.
3. Expose students to the postsecondary institution and the surrounding community to create a sense of belonging.

Conclusion

This chapter introduced the concept of summer bridge programs as an intervention to enhance students' college readiness, specifically related to noncognitive factors. The purpose of this quantitative study was to examine the development of noncognitive factors related to college readiness throughout the course of a summer bridge program. The five constructs of noncognitive factors developed by Farrington et al. (2012), including academic behaviors, academic perseverance, academic mindsets, social skills, and learning strategies, guided the study to determine if participation in a summer bridge program resulted in a difference of factors in regard to college readiness.

The study is relevant to current issues in K-12 and higher education due to the rate of students arriving at college not prepared to be successful.

In the following chapter, a literature review focuses on providing descriptions of a college readiness model and specific noncognitive factors related to college readiness. The literature review also provides information about the population of interest for this particular summer bridge program, which includes low SES and rural students, as well as research on summer bridge programs.

Definition of Terms

Academic behaviors refer to

behaviors commonly associated with being a good student. These include regularly attending class, arriving ready to work (with necessary supplies and materials), paying attention, participating in instructional activities and class discussions, and devoting out-of-school time to studying and completing homework. (Farrington et al., 2012, p. 8)

Academic mindsets refer to “the psychosocial attitudes or beliefs one has about oneself in relation to academic work” (Farrington et al., 2012, p. 9).

Academic performance refers to “the relationship between [each noncognitive] factor and students’ course grade or GPA” (Farrington et al., 2012, p. 6).

Academic perseverance refers to “the difference between doing the minimal amount of work to pass a class and putting in long hours to truly master course material and excel in one’s studies” (Farrington et al., 2012, p. 9).

Cognitive factors refer to the “substance of what is learned in school, namely a student’s grasp of content knowledge and academic skills such as writing and problem solving” (Farrington et al., 2012, p. 2).

College access refers to the eligibility, acceptance, and enrollment in a postsecondary institution (Perna, 2005).

College knowledge refers to the “information students need to apply successfully to college, gain necessary financial aid, and then, subsequent to matriculation, understand how college operates as a system and culture” (Conley, 2008, p. 10).

College readiness refers to the level of preparation a student needs in order to enroll and succeed, without remediation, in a credit-bearing general education course at a postsecondary institution that offers a baccalaureate degree or transfer to a baccalaureate program (Conley, 2008).

Learning strategies refers to “processes and tactics one employs to aid in the cognitive work of thinking, remembering, or learning [and] allow students to leverage academic behaviors to maximize learning” (Farrington et al., 2012, p. 10).

Noncognitive refers to “sets of behaviors, skills, attitudes, and strategies that are crucial to academic performance in their classes, but that may not be reflected in their scores on cognitive tests” (Farrington et al., 2012, p. 2).

Social skills refer to “acceptable behaviors that improve social interactions, such as those between peers or between student and teacher” (Farrington et al., 2012, p. 11).

Succeed refers to completing entry-level courses at a level of understanding and proficiency that makes it possible for the student to consider taking the next course in the sequence or the next level course in the subject area (Conley, 2008).

CHAPTER II

REVIEW OF LITERATURE

The review of literature for this study focuses on describing conceptual frameworks of college readiness and noncognitive factors of college readiness. These frameworks are based on models of K-12 and higher education practice and are grounded in student development concepts (psychosocial, cognitive, transition). They have general connections to fields of psychology, development, and counseling, but the main purpose of this study centers on educational access from K-12 to higher education. Following the description of frameworks, this review describes low SES and rural student populations in relation to college readiness and the importance of summer bridge programs as interventions to enhance college readiness.

Introduction

Upon graduation from a secondary educational institution, it is imperative that all students are prepared for some form of postsecondary education or training (National Association of Elementary School Principals [NAESP], n.d.) to meet the workforce needs of the growing economy (ACT, 2017). Over the past 2 decades, changes in the United States economy have raised the need for postsecondary degree attainment and students have responded by increasing their educational aspirations tenfold (Carnevale, Smith, & Strohl, 2010; Venezia & Jaeger, 2013). Postsecondary education plays a pivotal role in improving individual student outcomes that include job opportunities, income, and

overall health (Byun, Meece, & Agger, 2017; Carnevale et al., 2010; College Board Advocacy & Policy Center, 2010).

A majority of students who are enrolling in postsecondary education are recent high school graduates (Snyder, Dillow, & Hoffman, 2009) and their level of preparation for college-level coursework is profoundly influenced by high school experiences (Gaertner, Conley, & Stoltz, 2016). A concerning number of students are graduating from high school without preparation to meet the demands of postsecondary education (ACT, 2017; Attewell, Lavin, Domina, & Levey, 2006; College Board Advocacy & Policy Center, 2010). The debate as to exactly what constitutes readiness for college-level work varies among institutions (Attewell et al., 2006). Furthermore, highly individualized student circumstances have led to discrepancies in how to adequately prepare students for postsecondary education. There are increasingly visible limitations of the current structures, programs, and practices intended to promote postsecondary student success (Venezia & Jaeger, 2013). This deficit is a pressing issue that needs to be addressed to better serve student populations and advance college completion rates (Snyder, de Brey, & Dillow, 2016). The College Board Advocacy & Policy Center (2010) expresses the need for college readiness by stating:

In today's global, knowledge-based economy, a college education is the gateway to social mobility and better lifelong opportunities. The vast majority of America's high school students (86 percent) expect to attend college, but many lack the support and guidance they need to prepare for enrollment and success in college. (p. 2)

Pursuing and enrolling in postsecondary education is one of the first steps in reaching adulthood (Hossler, Schmit, & Vesper, 1999) and college enrollment is one of the first direct actions in obtaining a postsecondary degree (Arnold et al., 2012). It is characterized by a variety of transitions that occur when adolescents are entering into an environment where they are experiencing a wave of expectations to leverage independence to engage in educational activities (Conley, 2008; Schlossberg et al., 1995). Differences in expectations between secondary and postsecondary education are significant (Conley, 2003; Conley, 2008) and student success in higher education requires a more dynamic level of skillsets (Conley, 2007). For example, instructors at postsecondary levels are more likely to expect students to engage in a series of thinking skills, including making inferences, interpreting results, analyzing conflicting explanations of phenomena, supporting arguments with evidence, solving complex problems with no clear answers, drawing conclusions, offering explanations, conducting research, engaging in the exchange of ideas, and thinking deeply about what they are learning (Conley, 2003; National Research Council, 2002). These key skills go beyond what is expected in high school academic competencies (Conley, 2007).

Completion of a postsecondary degree enhances a student's ability to reach their full potential (NAESP, n.d.). However, the sole act of attending a postsecondary institution does not indicate that a student is college-ready. College readiness is defined as the level of preparation a student needs to be successful at a postsecondary institution that offers a baccalaureate degree; this is demonstrated through enrolling and succeeding in a credit-bearing, general education course without remediation (Conley, 2008). Often,

measures of college readiness lack the capability to highlight and include all of the key components that demonstrate a student's level of preparation for college. Current measures focus on testing students' level of cognitive skills and fail to incorporate noncognitive elements that cannot be measured by cognitive tests (Conley, 2008; Farrington et al., 2012; Sedlacek, 2010; Zwick & Himelfard, 2011). It is important to know the degree to which prior educational and personal experiences have enabled students to develop attributes necessary to meet the expectations and demands of postsecondary institutions (Conley, 2008). This topic will be given further attention when discussing the student populations of interest.

Since the mid-1980s, U.S. public education has been dominated by test score accountability models to measure college readiness (Farrington et al., 2012). Currently, test scores are used as the most convenient predictor of postsecondary success in college admissions but could undermine the importance of other factors that impact student success and college readiness (Conley, 2007; NAESP, n.d.; Sedlacek, 2010). The following section provides the most current information on ACT testing student outcomes, which is a widely utilized method to determine college readiness due to the lack of available instruments to measure college readiness inclusive of noncognitive factors.

The Condition of College and Career Readiness

Over the past decade, there has been a sharp increase in the number of students who take the ACT. The most recent ACT (2017) report demonstrated the current state of college readiness in the United States. Eighty-four percent of the 2016 graduating high

school class who took the ACT indicated aspirations to attend college, yet only 64% enrolled in a postsecondary institution, meaning that more than 400,000 students did not enroll in a postsecondary institution immediately following high school graduation. Data for college enrollment of the 2017 graduating class are not yet available. Approximately 60% of the 2017 graduating high school class, or 2,030,038 students, took the ACT. More than half of the students who are not considered underserved met at least three of the four ACT College Readiness Benchmarks (ACT, 2017). Benchmark scores predict the probability of success in credit-bearing college courses in English (score 18 out of 36), social science/reading (score 22 out of 36), math (score 22 out of 36), and science (score 23 out of 36). Students who meet Benchmark scores have a 75% chance of earning a C or better in a credit-bearing college course and a 50% chance of earning a B or better in a credit-bearing college course (ACT, 2013). In recent years, approximately half of the students taking the ACT were considered underserved, including low SES, minority, and first-generation students. Less than one-fourth of underserved learners met at least three of the four ACT College Readiness Benchmarks. More than one-fourth of fee waivers that were distributed to ACT examinees were not used, indicating that over 180,000 low SES students missed an opportunity to take the ACT (ACT, 2017).

Findings from the ACT (2017) report shed light on the discrepancies in college readiness and college enrollment for high school graduates from underserved populations. Zwick and Himelfard (2011) conducted a study to determine the predictive value of standardized test scores on first-year college GPA. Results from a regression analysis of 123,358 students attending 34 different colleges indicated that

underrepresented students' first-year college GPA was predicted at a higher error rate than their traditional peers. These findings suggest that only considering cognitive factors by traditional measures in regard to college readiness does not account for all factors related to academic success and creates a barrier in college admissions for underrepresented populations (Zwick & Himelfard, 2011), such that "these measures are heavily influenced by the context of the high school and its course of study and by the student's familiarity with and preparation for admissions tests" (Gaertner et al., 2016, p. 9). There is a need for educational policies and practices to shift the focus on test scores toward measurements that capture the multifaceted dimensions of cognitive and noncognitive college readiness factors that lead to student success in more comprehensive and consistent ways (Conley, 2007; Farrington et al., 2012) to decrease the underestimation of likelihood of success of less advantaged students (Gaertner et al., 2016).

The following section provides a description of Conley's (2007) college readiness model followed by a description of noncognitive factors derived from Conley's (2007) college readiness model by Farrington et al. (2012) that relate to college readiness. These models are the constructs that will be used to interpret the current study's findings in regard to understanding the impact of summer bridge programs on noncognitive factors of college readiness for underrepresented student populations.

College Readiness

Decades of disparity in enrollment between traditional college students and underrepresented college students in postsecondary education has prompted a wave of

college access research to incorporate factors other than cognitive assessments in college readiness criteria (Bial & Rodriguez, 2007). The National Center for Education Statistics (NCES) reported postsecondary enrollment trends from 1976 to 2008. Historically, White students have enrolled at a higher rate than any other race (63.2% of enrolled students in 2008). From 1976 to 2008, Black student enrollment increased 3.9% (13.9% of enrolled students in 2008) while Hispanic student enrollment has increased 9.2% (12.9% of enrolled students in 2008). In 2008, all other races comprised 10.1% of enrolled students (Aud, Fox, & KewalRamani, 2010). Of the 84% of students who graduated from high school in 2016, the following describes high school completion rates by race: White (88%), Black (76%), Hispanic (79%), Asian/Pacific Islander (91%), and American Indian/Alaska Native (72%) (McFarland et al., 2018). These data exemplify the lower rates of enrollment of underrepresented students at postsecondary institutions compared to high school graduation rates.

The three primary areas of college readiness research focus on high school GPA, course-taking patterns, and college entrance exams (Conley, 2007), which treat students as a uniform group without accounting for varying backgrounds and experiences (Byrd & Macdonald, 2005; Strayhorn, 2014). A pioneer of the movement to incorporate noncognitive variables into the understanding of college readiness is William Sedlacek (2010), who stated that noncognitive variables are “particularly critical for nontraditional students since standardized tests and prior grades may provide only a limited view of their potential” (p. 845). Sedlacek and Brooks (1976) developed the Non-Cognitive Questionnaire, which measures the following eight noncognitive variables: positive self-

concept, realistic self-appraisal, understands and deals with racism, long-range goals, availability of a strong support person, successful leadership experience, community, and nontraditional knowledge acquired. This assessment set the foundation for discovering ways to measure noncognitive variables to identify college-ready students to complement more traditional measures of college readiness. Despite forward momentum in noncognitive research, most college readiness noncognitive research such as college knowledge (Conley, 2005), time management (Britton & Tesser, 1991), grit (Duckworth, Peterson, Matthews, & Kelly, 2007), and study skills (Credé & Kuncel, 2008), among other factors, has not been grounded in a central theory; therefore, variables are often studied in isolation, resulting in a plethora of constructs that lack integration (Sommerfeld, 2011). A need arose for a more comprehensive college readiness model to integrate cognitive and noncognitive factors.

College Readiness Model

College readiness is a complex benchmark that requires the combination of academic content knowledge, academic skills, sets of behaviors, attitudes, and strategies that impact academic performance (Arnold et al., 2012; Farrington et al., 2012). Conley (2008) describes a college-ready student as follows:

The college-ready student envisioned by [college readiness] is able to understand what is expected in a college course, can cope with the content knowledge that is presented, and can develop the key intellectual lessons and dispositions the course is designed to convey. In addition, the student who is ready for college will be able to understand the culture and structure of postsecondary education and the ways of knowing and intellectual norms of this academic and social environment. (p. 4)

Conley (2007) created a comprehensive model of college readiness that incorporates cognitive and noncognitive factors to illuminate the gaps that exist between students who are college-eligible based on secondary education standards and those who are truly college-ready (see Figure 1).



Figure 1. Constructs of College Readiness. © 2018 David T Conley. Reprinted by Permission.

College readiness is a multifaceted concept that includes internal and external components that relate back to the classroom environment. Factors within the model are not mutually exclusive and interact to a high degree (Conley, 2008). Therefore, it is important to describe the cognitive areas in addition to noncognitive areas of college readiness due to the intertwining nature of the factors. Conley's (2007) model will be

discussed section by section to further illuminate the key components of college readiness.

Cognitive Constructs of College Readiness

Key cognitive strategies. The first construct, key cognitive strategies, is foundational for students to be able to learn content from a wide range of academic areas that underlie ways of knowing (Conley, 2008; Perry, 1999). Cognitive strategies are representative of the core academic mission of postsecondary institutions, which is to convey meaning of subject matter as well as opportunities to pursue them (Conley, 2008). College-ready students have the ability to utilize systematic approaches to reach learning objectives that use methods and thought processes relevant to a given discipline. Students are able to pursue a detailed plan of action to complete a complex task by choosing among alternative solutions and anticipating any potential problems that may arise (Conley, 2011). Conley (2008) describes the key cognitive strategies as follows:

Problem formulation and problem solving - “The student develops and applies multiple strategies to formulate and solve routine and nonroutine problems and selects the appropriate method for solving complex problems.” (p. 7)

Research - “The student engages in active inquiry and dialogue about subject matter and research questions and seeks evidence to defend arguments, explanations, or lines of reasoning. The student documents assertions and builds an argument that extends from previous findings or arguments. The student uses appropriate references to support an assertion or a line of reasoning. The student identifies and evaluates data, material, and sources for quality and content, validity, credibility, and relevance. The student compares and contrasts sources and findings and generates summaries and explanations of source materials.” (p. 7)

Reasoning, argumentation, and proof - “The student constructs well-reasoned arguments or proofs to explain phenomena or issues, uses recognized forms of reasoning to construct an argument and defend a point of view or conclusion,

accepts critiques of or challenge to assertions, and addresses critiques and challenges by providing a logical explanation or refutation or by acknowledging the accuracy of the critique or challenge.” (p. 7)

Interpretation - “The student analyzes competing and conflicting descriptions of an event or issue to determine the strengths and flaws in each description and any commonalities among or distinctions between them. The student synthesizes the results of an analysis of competing or conflicting descriptions of an event, issue, or phenomenon into a coherent explanation. The student states the interpretation that is most likely correct or is most reasonable based on the available evidence. The student presents orally or in writing an extended description, summary, and evaluation of varied perspectives and conflicting points of view on a topic or issue.” (p. 7)

Precision and accuracy - “The student knows what type of precision is appropriate to the task and the subject area, is able to increase precision and accuracy when a task or process is repeated, and uses precision appropriately when a task or process is repeated, and uses precision appropriately to reach correct conclusions in the context of the task or subject.” (p. 8)

Ghanizadeh (2017) conducted a study to assess higher-order cognitive skills, including reflective thinking (habitual action, understanding, and reflection) and critical thinking (inference, deduction, interpretation, and evaluation) and their associations with academic achievement. Based on data collected from a sample of 196 students enrolled in a postsecondary institution completed questionnaires, significant results demonstrated that reflective thinking and critical thinking were positively correlated with GPA. The researcher suggested that the ability to analyze and critique course information at a high-order level enabled students to engage in effective learning strategies, which led to academic achievement, emphasizing the importance of key cognitive strategies needed for success in a postsecondary learning environment (Perry, 1999).

Key content knowledge. The second construct, key content knowledge, is the student’s acquisition of academic knowledge and skills that are essential to college

readiness, including knowing key terminology and factual information, linking ideas, and organizing concepts that are affiliated with the core academic subjects including English, math, science, social studies, world language, and art (Conley, 2011). A student who is college-ready will have a thorough understanding of foundational concepts in these subject areas (Conley, 2008).

Attewell and Domina (2008) analyzed data from over 7,900 student surveys administered through the National Education Longitudinal Study of 1988 (NCES, n.d.b) to explore the impact of high school curriculum on test scores and college entry. Results demonstrated disparities in access to demanding secondary courses based on SES, such that low SES students were overrepresented in less-demanding courses compared to their peers. Taking less-demanding coursework was associated with lower key content knowledge, which influences college entrance test scores and lower entry rates to 4-year colleges. Researchers positioned curriculum intensity into quintiles and found that a one-quintile increase in curriculum intensity resulted in a 10% increase in postsecondary attendance (Attewell & Domina, 2008). This study sheds light on the importance of the acquisition of content knowledge in secondary educational environments for underrepresented students to enhance college access, which is often a result of barriers related to access to resources that creates an opportunity gap (Kazis, 2006; Reardon, 2011; Wu, 2014).

Remedial Coursework

Students who enroll in a higher education institution not fully ready to meet the academic cognitive demands of college coursework are less likely to be successful in

entry-level courses (Conley, 2007) and are often advised to take remedial, or pre-college level, coursework during college to strengthen academic skills (Chen & Simone, 2016). However, placement methods are inconsistent among institutions and students are often allowed to bypass remedial courses, which can cause first-year students to struggle academically (Conley, 2007). Chen and Simone (2016) analyzed a nationally represented sample of students enrolled at public 4-year institutions from 2003 to 2009 and found that approximately 40% of students took at least one remedial course, 26% of students took at least two remedial courses, and 9% of students took remedial courses across multiple disciplines. Approximately 59% of all students enrolled in remedial courses at public 4-year institutions successfully completed the courses. This indicates that approximately two-fifths of students who are enrolling at postsecondary institutions are not academically prepared for the demands of college-level coursework. Enrolling in remedial courses increases the amount of time it takes for degree completion and also decreases graduation rates (Chen & Simone, 2016).

Participation in remediation coursework is more common for underrepresented students (Attewell et al., 2006; Chen & Simone, 2016). Attewell et al. (2006) utilized data from the National Educational Longitudinal Study of 1988 (NCES, n.d.b). In 2000, 2,004,732 students were surveyed to determine college outcomes. Overall, 52% of students who completed remedial coursework obtained a bachelor's degree, compared to 78% of students who required no remedial coursework. Data also indicated that 52% of students from a low SES background took remedial courses compared to 24% of high SES students. Students from low SES backgrounds are often reliant on secondary schools

to prepare them for postsecondary success (Attewell & Domina, 2008; Attewell et al., 2006). Decreased levels of social capital can send unclear signals to low SES students about college readiness (Cates & Schaeffe, 2011; Conley, 2007), resulting in an increased enrollment in remedial coursework (Attewell et al., 2006; Conley, 2007). Students who identify with a minority race also took remedial courses at a higher rate. However, data from this study cannot conclude if these populations voluntarily enrolled in remedial courses or were advised to take remedial courses (Attewell et al., 2006). Results from the study shed light on the disparity among graduation rates for students enrolled in remedial courses compared to students who enter college prepared for college-level coursework as well as students from underrepresented backgrounds. This supports the idea that college readiness in cognitive areas has an impact on college persistence and completion and may act as a barrier for student populations that have limited access to resources in secondary education settings (Attewell & Domina, 2008; Kazis, 2006).

Cognitive factors are a major component of college readiness, but there are additional skills that students must possess to be college ready. Noncognitive factors, such as academic behaviors, attitudes, and contextual knowledge, are of equal importance when determining if students are college ready (Conley, 2007). The following two constructs of Conley's (2007) college readiness model describe these noncognitive factors.

Noncognitive Constructs of Conley's (2007) Model

Key learning skills and techniques. The third construct of Conley's (2007) college readiness model integrates academic behaviors with student success. This area of

readiness addresses student behaviors that encompass a holistic sense of self-awareness, self-monitoring, and self-control of actions that promote academic success in the key content areas. Academic behaviors can be separated into three main categories including self-management, study skills, and time management (Conley, 2008).

Self-management is a behavior that is a form of metacognition, which is the ability for one to think about what they are thinking (Ritchhart, 2002). Students with self-management skills understand their current level of mastery of a subject, reflect on successes and areas of improvements, show persistence when given an unfamiliar task, select and utilize multiple learning strategies, and effectively transfer learning strategy skills to a new environment (Bransford et al., 2000). Through these behaviors, individuals who practice self-management actively monitor, regulate, evaluate, and direct thinking (Ritchhart, 2002). In addition to self-management, college-ready students have acquired study skills necessary for success in postsecondary education. Students can effectively use active strategies including prioritizing tasks, taking class notes, locating information resources, and communicating with stakeholders to enhance academic success (Conley, 2008; Credé & Kuncel, 2008). Robbins et al. (2006) administered a readiness survey to 14,642 incoming first-year students at 48 postsecondary institutions to determine the effect of self-management and study skills, among other variables, on predicting college outcomes. Self-management factors and study factors were found to be predictors of retention for students, indicating that the utilization of these behaviors positively impacts academic performance.

Lastly, time management is a critical and foundational academic behavior that positively influences cognitive strategies and content knowledge (Conley, 2008). Britton and Tesser (1991) analyzed survey data from 90 undergraduate students to determine the relationship between time management skills and college grades. Time management skills accounted for 21% of the variance in predicting GPA when analyzed in conjunction with college entrance exams scores. College-ready students are able to estimate and allocate time required to complete a task through organizational techniques such as using calendars, creating to-do lists, and balancing time devoted to studying versus work and socializing (Conley, 2008) to enhance academic performance.

Key transition knowledge and skills. The fourth construct is the use of contextual skills and awareness. Access to information concerning the culture of higher education can help students navigate college as social system (Conley, 2007). Knowledge of how to locate and use academic and personal support resources is also characteristic of college-ready students (Conley, 2008). In this domain, college-ready students exhibit contextual, procedural, financial, cultural, and personal knowledge (Conley, 2011). College knowledge is the “information students need to apply successfully to college, gain necessary financial aid, and then, subsequent to matriculation, understand how college operates as a system and culture” (Conley, 2008, p. 10).

The first component of college knowledge is information pertaining to high school achievements relevant to being eligible for admissions, selecting an appropriate institution, gaining admissions to an institution, and obtaining financial aid (Conley, 2005). Myers et al. (2010) assessed the Washington State Achievers (WSA) program,

which was designed to provide financial, academic, and college preparation support to low SES students in a secondary setting. Elements of the program related to college knowledge included accessing a college and career center, attending college fairs, attending college workshops, and understanding financial aid resources. Researchers analyzed outcomes for 579 students and found that the WSA program was effective in promoting positive college enrollment patterns for students compared to non-program participants, such that non-program participants were 68% less likely to attend a 4-year postsecondary institution. In addition to positive college enrollment patterns, researchers found that students who received financial support from the WSA program were more likely to enroll in 4-year, high-quality postsecondary institutions. These findings highlight the impact of college readiness interventions in enhancing college knowledge for a student population that often lacks access to these resources.

The second component of college knowledge is the ability to interact with professors, staff members, and peers in a postsecondary setting. It is imperative for students to have knowledge of the norms of the academic culture and appropriate interactions within a higher education setting (Conley, 2005), including relations with others in the environment who are from various backgrounds and cultures (Bowman & Denson, 2012). Cokley, Komarraju, Patel, and Castillon (2004) administered the Student-Professor Interaction Scale (SPIS), Academic Motivation Scale, and Academic Self-Concept Scale to 318 students enrolled in a postsecondary institution to determine the relationship between student-professor interactions and motivation, self-concept, and academic achievement. Scores on the SPIS were significantly correlated with academic

self-concept for all student populations in the sample (Cokley et al., 2004), indicating that students who perceive their professors as caring, approachable, and respectful are more likely to have self-confidence in their academic abilities (Han, Farruggia, & Moss, 2017). Scores on the SPIS were significantly correlated with academic motivation for only White students. Researchers suggested that ethnic minority students might be seeking support from sources other than their professors (Cokley et al., 2004), which supports the idea of utilizing summer bridge programs as an intervention for underrepresented students as a source of support to enhance college readiness and academic achievement (Gándara, 2002; Swail, 2000).

College Readiness Index

In the beginning stages of the development of Conley's (2007) college readiness model, it was seen as a conceptual framework to guide the creation of new measures to gauge all facets of college readiness, with greater accuracy across a wider range of contexts due to the lack of systems available to intentionally align high school programs with expectations of postsecondary education (Conley, 2007). The ultimate goal of this model was to create

one set of scores or indicators across multiple dimensions and measures that could be tracked over time from perhaps sixth grade through high school that would allow everyone involved to be aware of where a student stood relative to the various dimensions of college readiness at any given point in time. (Conley, 2007, p. 22)

Conley (2003) led the collaborative research efforts of more than 400 faculty and staff from more than 20 research universities who sought to identify what makes students

successful in entry-level courses by researching the content of entry-level college courses, perceptions of instructors on what students need to be successful in these courses, and high school interventions effective at enhancing college readiness. Utilizing this foundational research, Conley developed the Knowledge and Skills for University Success framework (Conley, 2003), which guided the development of Conley's (2007) college readiness model.

Conley created the Conley Readiness Index (CRI), which is a student survey that results in a profile of the student in the four key areas of the model to demonstrate areas of a student's strengths and weaknesses. Students are able to target key areas in which to seek out support while educators can gain information to determine areas of students' needs, allowing the instrument to generate recommendations at both the student level and educator level. Although progress has been made in developing a comprehensive instrument to measure college readiness, the CRI addresses factors that are actionable and directly associated with success in entry-level college courses but fails to address traditional predictive factors, such as SES (Gaertner et al., 2016). Strayhorn (2014) conducted a study using data from the Education Longitudinal Study of 2002 (NCES, n.d.c) and tracked approximately 15,000 students from 750 different high schools over the course of 4 years to identify factors and experiences that influenced college readiness measures for historically underrepresented minorities at 4-year postsecondary institutions. Findings indicated that Conley's (2007) four factors of college readiness explained less than 20% of the variance in outcomes for Blacks and Latinos. Approximately 70% of variance in college readiness outcomes was left unexplained

(Strayhorn, 2014), indicating that the CRI needed to be expanded to include other predictive concepts of college readiness when studying underrepresented populations.

Due to the wide variety of summer bridge program structures (Kodama, Han, Moss, Myers, & Farruggia, 2016), there is no consistent application of Conley's (2007) college readiness model in current summer bridge program literature. The utilization of structured information on college readiness is lacking due to the fragmented and inconsistent application of cognitive and noncognitive interventions during summer bridge programs. For example, Sablan and Tierney (2016) describe Conley's (2007) college readiness model as a foundation for a summer bridge program. However, researchers only focus on writing and college knowledge and fail to address the model as a whole in relation to the intervention (Sablan & Tierney, 2016).

As research is being conducted to demystify college readiness and create comprehensive measures, one challenge has been encouraging schools to utilize the information and tools (Conley, 2007) due to the vast institutional differences in structure and the organization of tasks employed at the secondary and postsecondary level to aid in students' college readiness. This is reflected in the wide range of 4-year graduation rates at various institutions, ranging from over 90% to under 10% (Farrington et al., 2012). Recognizing the need to expand on Conley's (2007) college readiness model to add depth to understanding of noncognitive factors related to college readiness, Farrington et al. (2012) expanded on the third and fourth facets of Conley's (2007) model, which are described in the following section.

Introduction to Noncognitive Factors of College Readiness

Conley's (2007) comprehensive model of college readiness integrates research findings to combine cognitive and noncognitive factors that contribute to student success (Conley, 2008). The third and fourth facets of Conley's college readiness model, including academic behaviors and contextual skills and awareness, encompass noncognitive factors that directly impact the cognitive constructs of the model (cognitive skills and content knowledge). For practitioners to understand how to implement interventions to increase college readiness, it is important to know how noncognitive factors impact cognitive areas to influence student outcomes. Research on the noncognitive factors is beginning to gain momentum (Barsalou, 2010; Farrington et al., 2012) due to the need to gain a deeper understanding of the specific mechanisms by which noncognitive factors impact student performance (Farrington et al., 2013). Farrington et al. (2012) describe the importance of noncognitive factors in regard to educational settings as follows:

School performance is a complex phenomenon, shaped by a wide variety of factors intrinsic to students and in their external environment. In addition to content knowledge and academic skills, students must develop sets of behaviors, skills, attitudes, and strategies that are crucial to academic performance in their classes, but that may not be reflected in their scores on cognitive tests. Other researchers have described these factors as noncognitive skills; we broaden the term to noncognitive factors to go beyond a narrow reference to skills and include strategies, attitudes, and behaviors. This change in terminology suggests a more expansive understanding of noncognitive factors, requiring that we look beyond individual-level skills to consider the way students interact with the educational context within which they are situated and the effects of these interactions on students' attitudes, motivation, and performance. (p. 2)

Changes in cognitions to produce student learning is a product of the interaction between cognitive and noncognitive factors and is impacted by environmental and sociocultural contexts (Barsalou, 2010; Bransford et al., 2000; Chickering & Reisser, 1993; Farrington et al., 2012). Due to the nature of noncognitive factors, they cannot be measured by cognitive tests such as intelligent quotient tests or academic exams. Therefore, researchers often look to grades, or academic performance, as an indicator of the degree to which students have demonstrated abilities beyond cognitive strategies and academic content knowledge that are critical for success in school and later life outcomes (Allensworth & Easton, 2005; Farrington et al., 2012). Little work has been done to bring clarity to the catchall term of noncognitive factors; Farrington et al. (2012) attempt to conceptualize noncognitive factors by organizing them into domains. The following section describes the five domains of noncognitive factors derived from Conley's (2007) college readiness model that influence college readiness.

Noncognitive Framework Based on College Readiness

Farrington et al. (2012) created a framework of noncognitive factors that is situated within a school and classroom context. Factors are categorized into five domains to explain what it takes for students to pursue postsecondary education and persist to graduation. The five domains of noncognitive factors that relate to academic performance, measured by grades, are academic behaviors, academic perseverance, academic mindsets, social skills, and learning strategies (Farrington et al., 2012). Current understanding of the relationship of these variables is exhibited in Figure 2. Future research is needed to test the strength among the pathways in this model in order to

determine the importance of each category, the interactions of variables, and whether there are variables that may contribute to college readiness which have not been identified. The following subsections describe each of the five domains of noncognitive factors and how they impact academic performance, which is a contributing factor to holistic college readiness.

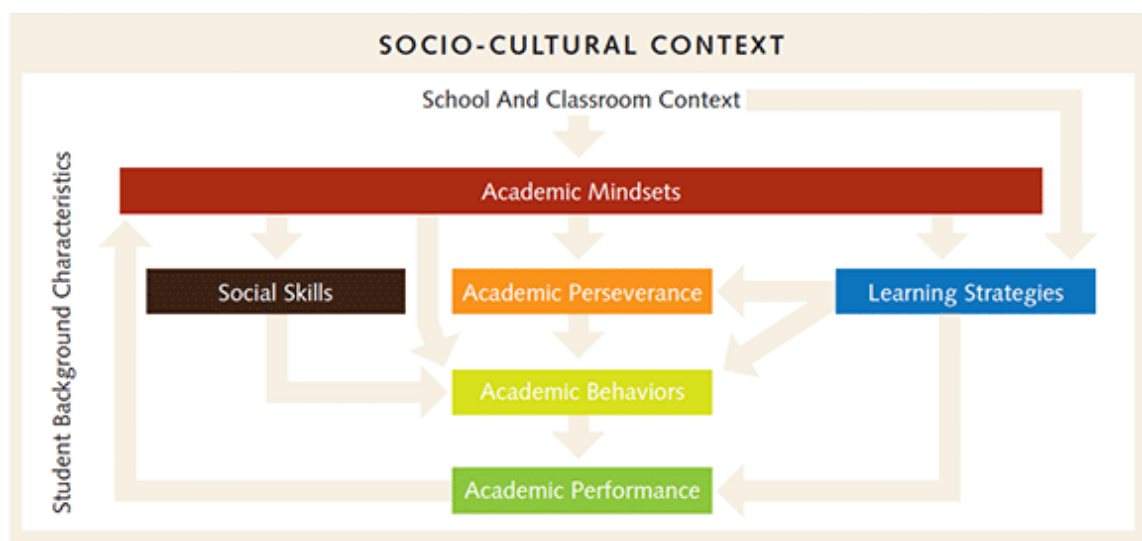


Figure 2. Noncognitive Factors of College Readiness. Reprinted by Permission (Farrington et al., 2012).

Academic Behaviors

Academic behaviors are visible behaviors that are most closely related to academic performance and directly impact student performance in the classroom context (Conrad, 2006). They include consistently attending class, arriving to class prepared, actively participating in class activities, and dedicating time outside of class to studying and completing assignments (Allensworth & Easton, 2007). Attending class is the most impactful academic behavior on academic performance because absence from a class can

lead to holes in understanding of course content (Farrington et al., 2012). Credé, Roch, and Kieszczynka (2010) conducted an analysis of the relationship between class attendance in college and college grades. Researchers utilized data from 90 samples that consisted of a total of 28,034 students of previously completed studies that reported a correlation between class attendance and academic outcomes. Results indicated a positive correlation between attendance and performance in an individual class and overall GPA, concluding that attendance provides a substantial increase in the amount of variance in academic performance when considering multiple factors. These findings are consistent with a previous study that found 61% of the variation in failing academic grades was determined by student absences (Allensworth & Easton, 2007).

Additionally, completing homework and class assignments is essential to academic performance because virtually all grades are based on these tangible tasks. Keith (1982) examined the relationship between time spent on homework and course grades utilizing data from a sample of 20,364 students from the High School and Beyond Longitudinal Study (NCES, n.d.a). Results indicated that the amount of time spent completing homework was an important predictor of course grades after controlling for race, family background, ability, and student program of study.

Academic behaviors can also indirectly impact academic performance. Engaging in positive academic behaviors enables students to learn more content and develop more skills, therefore producing higher quality work. All noncognitive factors are expressed through academic behaviors and directly shape academic performance (Farrington et al., 2012).

Academic Perseverance

Academic perseverance is “the difference between doing the minimal amount of work to pass a class and putting in long hours to truly master course material and excel in one’s studies” (Farrington et al., 2012, p. 9). It is a concept that describes student effort, which impacts the quality of academic behaviors exhibited by the student. Students who demonstrate academic perseverance complete assignments in a timely manner to the best of their ability regardless of distractions, obstacles, or challenges, and maintain momentum to continue to have positive academic behaviors (Farrington et al., 2012). Others have operationalized this term as academic tenacity, which is the ability to focus on long-term and higher-order goals, which is essential to reach long-term academic goals (Dweck et al., 2014).

The concept of grit, or the ability to stay focused on a goal despite challenges (Duckworth et al., 2007), has recently been used to describe perseverance. Gritty individuals work steadfastly in pursuing a long-term goal (Farrington et al., 2012). Duckworth et al. (2007) conducted a study to determine the association between grit and educational achievement. Researchers administered the Grit Scale to 139 undergraduate students at an elite university and found that higher ratings of grit were associated with higher GPAs, despite having lower standardized test scores. More recently, Hodge, Wright, and Bennett (2018) conducted a similar study to determine the relationship between grit and academic outcomes. The findings from this study confirmed Duckworth et al.’s (2007) results, supporting the positive relationship between grit and academic performance.

Self-control is also an important component of academic perseverance and is distinct from grit. Self-control is the ability to fulfill short-term obligations by avoiding impulsive behaviors. Bypassing distractions of lower pleasures is termed delayed gratification (Duckworth et al., 2007). Duckworth and Seligman (2005) conducted a study to determine the impact of self-discipline and delayed gratification on academic performance. A total of 304 eighth-grade students completed self-control scales and measure of intelligence scales. Results indicated that highly self-disciplined students outperformed their peers in every measure of academic performance, including grades and standardized tests. Additionally, researchers found that self-discipline accounted for more than twice as much variance in final GPA as did intelligence scores. Findings from this study emphasize the importance of noncognitive factors for academic success that go beyond cognitive ability. The innate level of academic perseverance varies among students. The level of demonstration of behaviors that are characteristic of academic perseverance is largely influenced by context and other skills that students possess (Farrington et al., 2012).

Academic Mindsets

Academic mindsets are “the psycho-social attitudes or beliefs one has about oneself in relation to academic work” (Farrington et al., 2012, p. 9) and influence academic perseverance to produce academic behaviors that lead to academic performance. For example, if students experience strong academic performance, they feel validated, which manifests into positive mindsets and increases perseverance to ultimately produce positive academic behaviors that improve academic performance

(Farrington et al., 2012). Academic mindsets are malleable such that “altering people’s view of themselves, or how they think others view them, can lead to cascading changes in motivation and performance” (Wilson, 2006, p. 1252). Farrington and colleagues (2012) describe the four academic mindsets as follows.

The first mindset, “I belong in this academic community,” is characteristic of students who feel like they belong in an educational community and are more likely to engage in positive academic behaviors (Cohen & Garcia, 2008; Farrington et al., 2012). Wentzel and Caldwell (1997) studied a sample of middle school students to examine the relationship between sense of belonging (reciprocated friendships, peer acceptance, and group membership) and academic achievement. Significant results indicated that group membership was the most consistent predictor of student grades over time. Osterman (2000) describes sense of belonging as follows:

The experience of belongingness is associated with important psychological processes. Children who experience a sense of relatedness have a stronger supply of inner resources. They perceive themselves to be more competent and autonomous and have higher levels of intrinsic motivation. They have a stronger sense of identity but are also willing to conform to and adopt established norms and values. These inner resources in turn predict engagement and performance. . . . They have more positive attitudes toward school, classwork, teachers and their peers. They are more likely to like school, and they are also more engaged. They participate in more school activities, and they invest more of themselves in the learning process. They have a strong sense of their own social competence, and they are more likely to interact with peers and adults in prosocial ways. (p. 343)

The second mindset, “my ability and competence grow with my effort,” describes students who are more likely to demonstrate academic behaviors associated with higher academic performance if they believe that they can increase their abilities by personal

effort. Individuals with a growth mindset are more willing to build competence, be self-motivating, and persist at academic tasks (Cury, Elliott, Da Fonseca, & Moller, 2006; Dweck & Leggett, 1988). Individuals' implicit theories of ability, or underlying beliefs, can "translate into dynamic motivational processes to produce major patterns of cognition, affect, and behavior" (Dweck & Leggett, 1988, p. 271). Cury et al. (2006) conducted two studies with adolescents to determine if implicit theories of ability were a significant predictor of performance attainment and intrinsic motivation. Both studies supported the hypothesis that there is a direct relationship between personal beliefs about one's ability and achievement outcomes.

The third mindset, "I can succeed at this," describes students' beliefs about the likelihood that they will be successful at a certain task and impacts the degree to which they put forth effort and exhibit effective academic behaviors (Bandura, 1986; Farrington et al., 2012). Self-efficacy, or the perception of being able to do something successfully, impacts the level of effort, persistence, and perseverance on a given task (Bandura, 1986; Bandura & Schunk, 1981). Bouffard-Bouchard (1990) administered a verbal concept-formation task to 64 students enrolled at a postsecondary institution to study perceived self-efficacy. There were two conditions, such that students received positive or negative feedback. Results demonstrated the context-dependent nature of self-efficacy because participants who received positive feedback reported higher rates of self-efficacy compared to the treatment group that received negative feedback. The treatment group that received positive feedback also demonstrated greater persistence on the given task, supporting the motivational component of efficacy (Bandura, 1986; Bouffard-Bouchard,

1990). Findings from this study demonstrate the influence of self-efficacy on a student's academic performance despite the existence of cognitive skills (Bouffard-Bouchard, 1990), indicating that self-efficacy is malleable and interventions have potential to enhance self-efficacy to produce positive academic outcomes (Wilson, 2006).

The fourth mindset, "this work has value for me," describes students who are interested in a subject and understand the connection between a task and their future goals such that they are more likely to engage in academic behaviors that lead to academic success (Eccles & Wigfield, 1995; Farrington et al., 2012; Wigfield & Eccles, 2000). The value that an individual places on a task is positively associated with their perception of their ability to complete that task (Eccles & Wigfield, 1995). Lauermann, Tsai, and Eccles (2017) utilized an expectancy-value framework to analyze adolescents' career plans and occupational outcomes. Results showed that participants' subjective task value beliefs about math predicted math-related career attainment 15 years later (Lauermann et al., 2017), supporting the idea that value placed on a subject in an educational environment produces positive academic behaviors that lead to attaining future goals (Eccles & Wigfield, 1995).

Han and colleagues (2017) conducted a study to determine if there were significant differences in students' success based on their academic mindsets, specifically related to self-efficacy, sense of belonging, and motivation. A diverse sample of 1,400 college students completed surveys and a cluster analysis was performed to determine differences in mindsets. Results indicated that academic performance and retention were enhanced for students who demonstrated high levels in all three areas. Researchers also

noted that during a student's first year in college, high levels of self-efficacy predicted positive academic outcomes, even if the student demonstrated low levels of motivation and sense of belonging. This highlights the need to focus on self-efficacy for incoming first-year students. Researchers found sense of belonging to be more associated with first- to second-year retention. These findings can guide the timing of interventions, such as summer bridge programs, related to specific mindsets to enhance student performance (Han et al., 2017) because academic mindsets are malleable and are influenced by context (Farrington et al., 2012; Wilson, 2006). Students are especially vulnerable to experience negative mindsets during transitional periods, such as entering a postsecondary educational environment. As students enter a new environment, they respond to novel and often more rigorous academic demands (Conley, 2003). They are in a position where it is important to reflect on their abilities and mindsets to adapt to a new environment and transfer their existing beliefs successfully to positively impact academic performance (Bransford et al., 2000; Credé & Kuncel, 2008; Farrington et al., 2012; Scholssberg et al., 1995).

Social Skills

Social skills are “acceptable behaviors that improve social interactions, such as those between peers or between student and teacher” (Farrington et al., 2012; p. 11). Examples of social skills include interpersonal attributes such as cooperation, assertion, responsibility, and empathy (Chickering & Reisser, 1993). Social skills impact academic performance through academic behaviors. It is difficult to isolate social skills from the other four noncognitive factors related to academic performance because social skills are

embedded in each factor (Farrington et al., 2012). Teo, Carlson, Mathieu, Egeland, and Sroufe (1996) conducted a 17-year longitudinal study to examine psychosocial factors as they relate to academic achievement. Measures of positive social emotional adjustment in early childhood were a predictor of positive academic achievement in high school. Consistent with findings from this study, Durlak, Weissberg, Dymnicki, Taylor, and Schellinger (2011) conducted an analysis on studies focusing on school-based interventions for enhancing social and emotional learning (SEL). Students in grades kindergarten through high school who received SEL programming had an 11% gain in academic achievement compared to the control group.

A limitation in the research on social skills in relation to academic performance is the lack of available research that reports causal relationships because it has been difficult for researchers to disentangle social skills from other social-emotional development areas. Additionally, a majority of the research on social skills focuses on primary education levels. Further research is needed to pinpoint how social skills influence academic outcomes and the mechanisms through which these factors have a direct causal impact on academic performance for college readiness (Farrington et al., 2012).

Learning Strategies

Learning strategies are “processes and tactics one employs to aid in the cognitive work of thinking, remembering, or learning [and] allow[ing] students to leverage academic behaviors to maximize learning” (Farrington et al., 2012, p. 10). Learning strategies encompass psychological processes including metacognition and self-regulated behaviors to aid in recalling facts (Credé & Kuncel, 2008), monitor comprehension, self-

correction (Zimmerman, 1990), time management (Britton & Tesser, 1991), and goal setting (Dweck et al., 2014). This group of skills is termed study skills and interacts with other noncognitive factors to produce learning. The appropriate use of learning strategies impacts academic behaviors, academic perseverance, and academic performance directly, through which positive performance in these areas impacts academic mindsets (Farrington et al., 2012).

Credé and Kuncel (2008) conducted a study to explore study habits, skills, and attitudes, and their relationship with academic performance. Researchers analyzed 19 studies that reported significant correlations between study habits, skills, attitude inventories, and GPAs to determine if the inventories accounted for variance in postsecondary academic performance above and beyond traditional predictors, such as the ACT and high school grades. Results indicated that responses from inventories analyzed did increase the predictive power of academic performance and the researchers suggested that there is a strong relationship between study habits, skills, and attitudes to academic performance in college that goes beyond information derived from traditional measures of predicting academic performance (Credé and Kuncel, 2008).

Noncognitive Factors for Underrepresented Student Populations

The current study used the five domains of noncognitive factors previously described as a framework to guide survey questions using the BEL-S. It is important to understand how these noncognitive factors fit into a more comprehensive college readiness framework to contribute to the literature that addresses the impact of summer bridge programs on college readiness (Farrington et al., 2012). Summer bridge programs

are designed to serve underrepresented students who often have limited opportunities to expand the skills necessary for college success (Kazis, 2006; Strayhorn, 2014).

Byrd and Macdonald (2005) interviewed eight first-generation college students to obtain student perspectives on college readiness. Researchers categorized participant responses into 10 categories. Academic skills, including skills in reading, writing, and math, was a common theme among participants, but responses related to time management, study skills, goal setting, applying oneself, and self-advocacy were emphasized by participants as critical for success. Particularly related to conversations concerning self-advocacy, participants noted this as an imperative skill that was needed to navigate the college system, especially relating to social skills and interpersonal interactions. In this study, self-advocacy was connected to participants developing a sense of self-concept in relation to their capabilities as college students. Discussion surrounding institutional resources shed light on participants' need for support. For example, there was a pattern of responses indicating that participants were unaware of how to navigate the financial aid process. Interview responses demonstrated that first-generation students understood concepts related to college readiness but often felt as if they lacked support from parents and high school counselors to develop college readiness skills and knowledge. Byrd and Macdonald (2005) suggested that first-generation college students might be more likely to internalize feelings of inadequacy related to college readiness than their peers, concluding that underrepresented students experience inequities in college readiness that can impact access to postsecondary education. It is

evident that noncognitive factors of college readiness are an area of concern for underrepresented student populations.

To highlight discrepancies in noncognitive factors of college readiness among varying populations, Strayhorn (2014) conducted a quantitative study described in a previous section. In relation to overall college readiness, low SES, first-generation, and minority students were consistently disadvantaged in terms of college readiness compared to their peers. Statistically significant predictors of noncognitive factors of college readiness for low SES and minority students included time spent studying and contextual knowledge (meeting with advisors and seeking college knowledge from family members). Across all populations, time spent studying was the most influential academic behavior on college readiness (Strayhorn, 2014), which is consistent with the positive outcomes of utilizing time management and skills as discussed by a previous study (Britton & Tesser, 1991). Results from this study can inform practitioners associated with college preparation programs of the areas of success and need for intervention for specific student populations. Summer bridge programs are interventions that can potentially include noncognitive components described in this section to complement cognitive development to enhance student college readiness and increase student success in postsecondary educational environments (Kallison & Stader, 2012; Sablan, 2014).

A great deal of variability exists across research in the definition of noncognitive factors. There has been a demand for more psychometrically sound measures to enhance the definitional clarity, and by more carefully differentiating the domains of noncognitive

factors, research can produce more explicit implications for practice to enhance college readiness (Farrington et al., 2012; Sommerfeld, 2011). Sommerfeld (2011) suggested changing the language addressing the constructs of noncognitive factors due to the lack of clarity and overgeneralization among research on these variables in various disciplines. It was suggested that when researchers are discussing college readiness factors outside of standardized tests and GPAs, they use the term non-academic in place of noncognitive to enhance conceptual clarity on factors that impact college success. Despite this criticism, research continues to address components of college readiness factors with the noncognitive terminology because noncognitive “is already deeply embedded in educational policy circles, in economics literature, and in broader discussions of student achievement” (Farrington et al., 2012, p. 2) with intentions of more clearly conceptualizing the connection between noncognitive factors and academic success (Farrington et al., 2012).

The focus of the current study is on the use of summer bridge programs as an intervention to enhance college readiness, specifically at the point in the educational pipeline after high school graduation and before postsecondary enrollment. The summer after high school graduation is a significant barrier to postsecondary access for many students (Castleman, Page, & Schooley, 2014) due to a leak in the educational pipeline that is partly due to a social capital gap (Roderick, Nagaoka, Coca, & Moeller, 2008). They can serve as one part of a more comprehensive attempt to complement K-12 and higher education efforts to enhance college readiness (Wachen, Pretlow, & Dixon, 2016). The following section shifts the focus of this literature review to describe the target

population of the summer bridge program and the need for college readiness interventions.

Key Populations for Inclusion in Summer Bridge Programs

Socioeconomic Status

There has been a national focus on systemic inequity in the United States in regard to SES and education (Lunceford, Sondergeld, & Stretavski, 2017). SES is a main influence on college access and students from a lower SES are underrepresented in postsecondary education (Perna, 2006) despite financial aid initiatives. Perna (2006) states,

The student financial aid programs that were authorized under Title IV of the Higher Education Act were intended to ensure that inadequate financial resources would not limit access to college. Nonetheless, despite substantial investment in student financial aid not only by the federal government but also by state governments, colleges and universities, and other entities, college access and choice remain stratified by socioeconomic status and race/ethnicity. (p. 99)

Access and completion of postsecondary education is imperative for social mobility of students from low SES classes (Lunceford et al., 2017). According to the most recent ACT report previously described, low SES students continue to struggle in regard to academic achievement levels and college readiness (ACT, 2017; Jensen, 2009) compared to their peers from middle and high SES families (Kazis, 2006). Wu (2014) stated,

Each year hundreds of thousands of low-income students face barriers to college access and success. Low-income students often lack the guidance and support they need to prepare for college, apply to the best-fit schools, apply for financial aid, enroll and persist in their studies, and ultimately graduate. As a result, large gaps remain in educational achievement between students from low-income families and their high-income peers. (p. 2)

There is a set of persistent challenges that hinder social mobility through higher education for students from low SES backgrounds, which is embedded in larger social structures. Family income impacts the quality of schooling that a student has access to as well as social support structures within an educational environment (Kazis, 2006; Reardon, 2011). The income achievement gap is now nearly twice as large as racial achievement gaps (Reardon, 2011). Cabrera and La Nasa (2001) found that students from low SES demographics applied to 4-year institutions at a rate of 17% lower than a national sample of similarly qualified students. Low SES students are less likely to attend college due to fewer opportunities to develop academic preparedness (Attewell & Domina, 2008; Cates & Schaeffle, 2011). Students from a low SES background enroll in remedial courses at a rate of 52%, compared to 40% of the overall student population (Attewell et al., 2006). Additionally, low SES students may have less access to social capital, which is a critical and influential component of college enrollment (Cates & Schaeffle, 2011; Farrington et al., 2012). Social capital includes information pertaining to enrolling in college, such as college preparation, admissions standards, and application procedures (Farrington et al., 2012; Walpole et al., 2005).

Since the 1960s, the federal government has recognized the need for transitional programs to provide low SES students with an equitable opportunity to attend college (Gándara, 2002). Recently, the U.S. Department of Education has provided federal grant funding for programs that address educational inequities (Lunceford et al., 2017; Strayhorn, 2011). For example, Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP) is a nationwide initiative to increase high school

student preparedness for postsecondary education, particularly for underrepresented student populations (Lunceford et al., 2017). GEAR UP provides college readiness counseling and programs, including college campus visits, college and financial aid application completion assistance, and scholarship search assistance to fill social capital gaps that are missing in secondary education environments. Results from a study to analyze the influence of GEAR UP indicated that students who participated in this program performed better on academic, non-academic, and college attendance outcomes compared to students who did not participate in the program (Lunceford et al., 2017).

Additionally, the federal TRiO outreach program is designed to promote educational access by identifying and providing support and resources to low SES students, which is administered by the U.S. Department of Education (DeLoughry, 1991; U.S. Department of Education, n.d.). TRIO programs encompass eight outreach programs to assist students from middle school to postsecondary education including Upward Bound, Student Support Services, and Educational Talent Search, among others (U.S. Department of Education, n.d.). For example, the Upward Bound program provides academic and other support services to high school students to increase high school graduate rates and postsecondary enrollment rates. According to a report on program outcomes for the 2004-2005 academic year, approximately 55% of Upward Bound participants who participated in the program for less than one year enrolled at a postsecondary institution following high school graduation, compared to students who participated in the program for 3 or more years, who enrolled at postsecondary institutions at a rate of approximately 91% (U.S. Department of Education, Office of

Postsecondary Education, 2008). Interventions focused on college access for underrepresented populations can positively increase postsecondary educational attainment.

Rural Students

In addition to focusing on low SES students for the summer bridge program of interest, program developers also intended to target students from rural areas, who are often also classified as low SES students. Rural trends of poverty and diversity are most prevalent in the South, Southwest, and Appalachia regions of the United States, which is where the host institution of the summer bridge program for the study is located. Rural areas are characterized by lower familial financial income, which impacts the investments that families and schools are able to contribute in resources to advance rural students' education (Roscigno & Crowley, 2001). Over one-half of rural students in the United States is eligible for free and reduced lunch rates (Johnson, Showalter, Klein, & Lester, 2014), which demonstrates the intersection of demographics relating to rural students also being classified as low SES students. The following sections describe the experience of rural students in regard to their path to college enrollment.

Approximately 9.7 million students live and attend schools in rural areas, which is just over 20% of the United States population of all students enrolled in public schools. Growth in rural school enrollment is greater than non-rural growth, which has contributed to the complexity of rural education and its relevance in the national educational landscape (Johnson et al., 2014). Recently, the number of rural students attending college has increased (Byun, Meece, & Irvin, 2012). Research is heavily focused on the

education of urban youth and little is known about rural students and their path to higher education attainment, including information about student background characteristics, pre-college experiences, and college experiences, and the relationship of how these factors contribute to college success (Byun, Irvin, & Meece, 2012). There is also a lack of information pertaining to rural students' college trajectory patterns and discrepancies in attendance to 2- versus 4-year institutions (Byun et al., 2017). There is a need for research to guide practices, policymakers, schools, and stakeholders to ensure that rural youth are given opportunities to partake in postsecondary preparation activities (Irvin, Meece, Byun, Farmer, & Hutchins, 2011) to enhance college access and readiness.

Byun et al. (2017) conducted one of the only research studies to date to explore rural students' college attendance patterns using a nationwide and contemporary sample of rural youth. Researchers studied three predictors of college attendance patterns including school structures and processes, student characteristics, and familial structures. The goal of this research was to examine varying college enrollment patterns of rural youth, determine variations in enrollment patterns based on individual student and school experiences, and examine pre-college factors that predict college enrollment patterns. Byun et al. (2017) used data from the Rural High School Aspirations Study administered by the University of North Carolina at Chapel Hill (UNC-CH) (National Center for Education Research, n.d.). The data collection occurred in 2007 and 2008 and the sampling frame included students from public rural high schools in the United States.

Results of this study most notably suggested that 64.5% of rural youth attended 2-year colleges at some point during their college career. One-fourth (24.2%) of these

students transferred to a 4-year postsecondary institution (Byun et al., 2017), indicating that only a small percentage of students who begin their postsecondary education at a 2-year institution is completing a bachelor's degree (Long & Kurlaender, 2009). A majority of rural students are opting to enroll in 2-year institutions as opposed to 4-year institutions (Byun et al., 2017; Handel, 2017), concluding that there is a lack of high school graduates from rural communities enrolling as first-year students at 4-year institutions.

Byun, Meece, and Irvin (2012) conducted a study to examine predictors of bachelor degree attainment among rural youth at 4-year institutions. They analyzed data from the National Educational Longitudinal Study of 1988 (NCES, n.d.b) and reported results indicating that rural high school students were more likely to attend less selective public institutions of higher education. Findings also suggested that rural students did not suffer disadvantages in degree completion due to attending a rural high school when compared to their urban and suburban peers (Byun, Irvin, et al., 2012; Byun, Meece, & Irvin, 2012). Favorable institutional features of rural schools, including small school size, strong community-school relationships, and supportive teacher-student relations positively impact rural students (Byun, Meece, & Irvin, 2012). Findings from Byun et al. (2017) and Byun, Meece, and Irvin (2012) suggested that students from rural settings do not struggle to be successful at 4-year institutions, but rather the issue is initiating enrollment in 4-year institutions as first-year students as opposed to following an educational trajectory of attending a 2-year institution or transferring into a 4-year institution. Summer bridge programs at higher education institutions can serve the needs

of rural students by providing sources of social capital (Byun, Meece, et al., 2012) because rural and low SES students are more likely to seek information from school staff members when planning for their futures (Griffin, Hutchins, & Meece, 2011). The following section describes strengths related to rural students' educational attainment.

Social capital impact on rural students. Rural students who successfully attain postsecondary education rely on various sources of social capital (Nelson, 2016), which is “the ability of actors to secure benefits by virtue of membership in social networks or other social structures” (Portes, 1998, p. 6). Prominent social capital indicators for rural students include family, school, and community constructs, which overlap (Byun, Meece, & Irvin, 2012; Nelson, 2016) such that families are situated within a school context and schools are embedded in a community context. It is important to acknowledge the intermingled nature of rural social networks when researching rural students' college attainment to understand the influence of extended family ties, family affiliations, and the school community as a central source of community networks (Nelson, 2016).

In relation to familial structures, the greatest predictor of education enrollment patterns of rural youth is the level of parental education (Byun et al., 2017; Byun, Meece, & Irvin, 2012; Hossler & Gallagher, 1987) due to parents with postsecondary experience being more knowledgeable about the various aspects of applying to college (Hossler & Gallagher, 1987), whereas individual student educational aspirations were less likely to predict enrollment patterns (Byun et al., 2017). Rural youths' desire to maintain a connection to their family and communities is often linked to their unwillingness to move away from home to pursue higher education (Byun et al., 2017; Howley, 2006). An

analysis of data from the Child Development Supplement to the Panel Study of Income Dynamics (Institute for Social Research, n.d.) indicated that 33.2% of members of a rural community elected not to move for a job opportunity compared to 7.6% of individuals who elected not to move away from a non-rural area for a job opportunity. Rural community members are less likely to accept job opportunities that often have higher economic value than their current occupation due to having to move away from their community, emphasizing the value placed on location as opposed to economic benefit (Howley, 2006). The context of a rural community may impact students' views of their career opportunities such that traditional rural values are linked to vocational pursuits that do not prioritize education (Byun et al., 2017; Howley, 2006). On the other hand, rural youth who do pursue higher education are often especially dedicated to their college education, supporting the research that rural youth who do pursue postsecondary education are performing at the same level as their peers (Byun et al., 2012b).

Smaller school sizes, which are often found in rural communities, are associated with positive educational outcomes, especially for low SES students. Irvin et al. (2011) conducted a survey study to explore the relationship between school characteristics and education achievement in a rural setting. Results indicated that rural youth who attended a small, high-poverty school demonstrated higher academic achievement than rural youth who attended a larger school, concluding that school characteristics are critical in supporting rural students' educational attainment (Irvin et al., 2011) and access to rigorous academic courses and college planning resources is key to college attainment for rural students (Byun et al., 2017). Secondary schools in rural areas can promote higher

education attainment through a rigorous curriculum (Byun et al., 2017; Byun, Meece, & Irvin, 2012), pro-college culture, student involvement in extracurricular activities (Nelson, 2016), and encouragement of relationships with high school teachers and school counselors (Byun, Meece, & Irvin, 2012; Nelson, 2016), all of which act as sources of social capital. Schools are instrumental in creating a culture that promotes educational attainment (Nelson, 2016) and the impact of structural components and processes at the secondary school level enhance long-term educational outcomes (Byun et al., 2017).

Community social capital is defined as “residents’ actions to improve the local economy, provide service, and express cohesion” (Nelson, 2016, p. 255). The presence of community social capital positively influences student performance because “these community attributes facilitate regular interactions between youth and adults via family connections, structured organizations, and other ties” (Nelson, 2016, p. 255). Nelson (2016) conducted interviews with 30 college graduates from rural areas. An emergent theme in the interviews was the importance of community social capital, which included extended family ties and a caring community. In rural areas, schools are often utilized as a central location for community activities and enhance the connection among families, schools, and the community by reinforcing the intertwined social capital connections. Students are more likely to form relationships with community members to enhance their social capital outside of the family (Nelson, 2016).

Summer bridge programs at higher education institutions can serve the needs of rural students by providing sources of social capital related to contextual skills and awareness (Cates & Schaeffle, 2011). Programs need to consider the level of family

support, academic preparation, and cultural variations to bridge a student's transition to a postsecondary educational environment to shape the behaviors that contribute to academic success (Byun et al., 2017). Rural students' educational trajectory is more commonly characterized by pursuit of education at a two-year institution (Byun et al., 2017; Handel, 2017) and to increase enrollment at four-year institutions, it is beneficial for institutions to focus on providing support and resources to rural students to enhance their college readiness to attend a four-year institution.

Conclusion of Key Population

Educators must consider the intersection of students' backgrounds and differences in access and opportunity to education in regard to demographic factors (Carey, 2014; Strayhorn, 2011), particularly SES and rural influences, for the purpose of the present study. The leak in the educational pipeline is largely due to a social capital gap for students in underrepresented populations, which is characterized by a lack of access to information, resources, and support necessary to enroll in postsecondary education (Roderick et al., 2008). The deficits experienced by low SES and rural students can have a profound impact on their college readiness. Summer bridge programs can be beneficial in preparing this target population for the demands of higher education institutions (Strayhorn, 2011). The following section describes summer bridge programs as an intervention to enhance the college readiness of students.

Summer Bridge Programs

Comprehensive college preparatory programs that focus on improving students' college readiness have been a popular intervention over the past 3 decades to improve

postsecondary access for underrepresented student populations (Lunceford et al., 2017). College readiness programs are intended to provide a connection between secondary and postsecondary education to increase enrollment and persistence in education for students (Swail, 2000) and prepare students to meet the academic demands of postsecondary education (Gándara, 2002). Academic preparation is a key predictor of college enrollment and success (Hossler et al., 1999).

The literature available on college readiness programs, specifically summer bridge programs, is fragmented and inconsistent, such that there are mixed findings about the impact of programs on student outcomes (Swail, 2000) due to studies not employing a control group, which makes it difficult for researchers to attribute student outcomes to interventions provided by summer bridge programs (Walpole et al., 2008). There is a lack of research on noncognitive variables and summer bridge programs because it is a newer idea in the field of college readiness.

The focus of the current study is summer bridge programs, which represents one type of pipeline intervention (Gándara, 2002; Kodama et al., 2016). Summer bridge programs originated with the federal Upward Bound programs and have evolved to serve various student needs (Kallison & Stader, 2012). They are programs that occur during the summer before a high school graduate attends a postsecondary institution and are intended to be a bridge to help students prepare for and enroll in college (Sablan, 2014). Summer bridge programs typically target underrepresented student populations who are not academically prepared for the rigor of college coursework (Kallison & Stader, 2012). Students participating in summer bridge programs engage in academic courses and

activities that promote social and academic skills necessary for success in college (Sablan, 2014). Support services can include, but are not limited to, tutoring, study skills development, and a focus on core writing, reading, and math skills (Gándara, 2002).

This section generally describes the structure of previously implemented summer bridge programs. The structure of summer bridge programs differs based on financial cost, length, content, social components, student participants, and residency, but all share the common goal of improving college readiness (Kodama et al., 2016). Summer Bridge (Sablan & Tierney, 2016) was a 4-week, non-residential program that required underrepresented students to take a writing seminar and a college knowledge seminar for 3 hours a day. The main focus of this program was to develop college writing skills and college knowledge. Researchers administered a pre- and post-survey to 94 students; approximately 60% of students who were considered remedial at the beginning of the program were classified as college-ready after completing the program based on writing and college knowledge factors (Sablan & Tierney, 2016).

Another summer bridge program hosted at a university in the Southeast region of the United States was a 5-week residential program where students spent about 7 hours a day in academic classes including English Composition and Academic Skills/Career Planning. During the evening, students participated in programs including diversity workshops, outdoor athletic events, and seminars on leadership and money management. The evening activities were intended to aid in students' transition to college life, encourage peer engagement, and increase familiarity with the campus. Fifty-five students completed a pre- and post-test to determine differences in students' self-efficacy, sense of

belonging, academic skills, and social skills. Researchers found that the summer bridge program positively impacted students' self-efficacy and academic skills (Strayhorn, 2011).

The Suburban Community College Summer Bridge Program was a 6-week program that combined an accelerated curriculum with intrusive services (Lopez, 2016). The curriculum included a college and career success course coupled with college reading, group activities, and presentations. The intrusive services focused on providing resources and support in the following three contexts: academic (school supplies, backpack, and textbooks), college services (financial aid workshops, financial aid liaison, lunch vouchers, bus passes, educational planning support, and priority course registration), and engagement (orientation for students and parents, tour of local university, tour of a local museum of tolerance, and on campus events). Researchers conducted interviews and focus groups with program participants, which revealed positive perceptions of the program in its ability to produce positive student outcomes (Lopez, 2016).

Walpole et al. (2008) studied a summer bridge program at a public, 4-year institution where participants were conditionally admitted to the institution contingent upon successful completion of a 5-week residential summer bridge program. Approximately 66% of students in the program were low SES students. During the day, students took writing and other academic courses. During the evenings, students participated in programming that addressed interpersonal skills, health and wellness, and financial aid literacy, as well as participated in visits to the career, counseling, and

academic success center. Longitudinal data showed that students who participated in the summer bridge program had increased levels of academic and social engagement during their first 2 years of college and had higher retention rates during the fall of their third year, when compared to a control group (Walpole et al., 2008).

Wachen et al. (2016) conducted a study to analyze a summer bridge program designed to serve recent high school graduates who applied to a UNC campus system but showed evidence of lower levels of academic preparedness based on their ACT scores or high school GPA. The program was designed as a 5- to 6-week intensive and rigorous summer residential program structured to emphasize time management, study habits, utilization of campus resources, and academic performance. Through the program, students enrolled in a college math and English course to enhance their preparedness for college success by introducing a foundation for their academic experience. A typical day included 4 hours of math instruction, 4 hours of English instruction, evening counseling sessions, group activities, and cultural events. The program also incorporated elements of noncognitive support that impacted student success such as tutoring, support labs, social support activities, counseling, and mentoring. In addition to academic preparation, the summer bridge program was intended to facilitate students' transition to a university setting fostering networks with faculty, advisors, mentors, and peers to contribute to students' college knowledge related to navigating a higher education environment. The structure of summer bridge programs in Wachen et al.'s (2016) study is similar to the summer bridge program in the current study.

The total number of summer bridge participants in the Wachen et al. (2016) study was 2,041. Approximately 69% of participants qualified for Pell Grants due to their low SES and approximately 51% of participants came from counties designated as rural. Of the 2,041 participants, 95% enrolled at a UNC system school in the fall semester following the program. Results of the study indicate a positive association between summer bridge participation and persistence to second year, with an increase in odds of persisting to the second year by 44%. Participants also gained an increase in credits earned, resulting in increased 4-year graduation rates. Based on the results of this program, researchers suggested that summer bridge programs are most effective when aligned with other state institutional strategies that provide support for students (Wachen et al., 2016). This study provided insights into academic components of summer bridge programs at UNC system institutions, but did not address noncognitive factors in the analysis of student outcomes.

Summer bridge programs can be an effective intervention tool to serve as one part of a more holistic attempt to improve student achievement and can complement other programs and policies designed to increase graduation rates for underrepresented students (Wachen et al., 2016; Walpole et al., 2008). Currently, there is a wide variety of programs to enhance college readiness, ranging from academic preparation to psychosocial supports, to emphasize various aspects of college readiness for distinct groups of students (Lunceford et al., 2017; Sablan, 2014). Programs typically utilize overlapping strategies to address multiple facets of college readiness to help students have access to, be prepared for, and succeed in postsecondary endeavors. There is no one

specific model that produces positive student outcomes in every educational environment or meet the needs of all students (Venezia & Jaeger, 2013). Therefore, it is important to understand the target population and how programmatic elements align with specific student needs to be college-ready.

Conclusion

College readiness is a complex phenomenon that has gained attention over the past 3 decades. Arnold et al. (2012) state,

College readiness has to do with all of these simultaneously interacting forces of ideology, social and organizational structure, time, and individual agency. Considering this complex view, America's inability to solve the problem of social mobility through higher education is understandable. The pressing social problem of persistent socioeconomic and racial gaps in U.S. postsecondary attainment seems impossible to untangle without accounting for this complicated picture. What is needed, in short, is a way of making sense of the complexity of college readiness without simplifying it. (p. 5)

Educators need to be intentional in their efforts to provide underrepresented students with access and opportunities to pursue postsecondary education. Most underrepresented students have aspirations to continue their education, but encounter barriers in the process (ACT, 2017).

Summer bridge programs have become an increasingly popular intervention to enhance college readiness, but little is known about the effectiveness of these programs (Sablan, 2014; Strayhorn, 2011). Due to the lack of consistency among summer bridge program research (Swail, 2000), more information is needed about specific elements of summer bridge programs that are likely to produce positive student outcomes in cognitive and noncognitive areas related to college readiness (Strayhorn, 2011) for low SES and

rural students. Past research has shown the importance of students acquiring cognitive skills (Ghanizadeh, 2017) and key content knowledge (Attewell & Domina, 2008) to allow for success in postsecondary coursework. In addition to cognitive factors, research has also shed light on the importance of noncognitive skills in relation to college readiness, including but not limited to attending class (Credé et al., 2010), self-discipline (Duckworth & Seligman, 2005), self-efficacy, sense of belonging (Han et al., 2017), social skills (Bowman & Denson, 2012; Durlak et al., 2011), and study skills (Credé & Kuncel, 2008; Robbins et al., 2006). Although research has begun to address factors outside of standardized testing and GPAs to determine levels of college readiness, underrepresented populations are continuing to enroll in remedial coursework at higher rates than their peers (Attewell et al., 2006; Chen & Simone, 2016), indicating these populations are continuing to encounter barriers in the educational environment (ACT, 2017). Summer bridge programs often target students from underrepresented populations (Kallison & Stader, 2012; Lunceford et al., 2017) to provide resources and act as a source of social capital, which is often lacking at the secondary level due to various factors (Cates & Schaeffle, 2011). Summer bridge programs have potential to prepare students to meet the academic demands of postsecondary education (Gándara, 2002).

The current study addressed noncognitive factors of readiness in the context of a summer bridge program. Chapter III discusses the methodology that was used to determine differences in regard to the development of noncognitive factors of college readiness during a summer bridge program intervention.

CHAPTER III

METHODOLOGY

This chapter describes the research questions, research design, participant selection, procedures for conducting the study, data collection, and analysis procedures. This quantitative study sought to determine if there were any significant differences in noncognitive factors in summer bridge program participants before and after participation in a summer bridge program as well as if there were differences in noncognitive factors between summer bridge program participants and a comparison sample of incoming first-year students not participating in the summer bridge program.

Research Questions

The purpose of the present study was to determine if there were differences in students' noncognitive skills that contribute to their overall college readiness over the course of a summer bridge program. The research questions were as follows:

- RQ1: Does participation in the summer bridge program affect noncognitive factors related to student college readiness?
- a. Is there a difference in academic behaviors (as measured in the BEL-S) before and after participating in the summer bridge program?
- H₀: There is no significant difference in academic behaviors of participants before and after participating in the summer bridge program.

H_A: There is a significant difference in academic behaviors of participants before and after participating in the summer bridge program.

- b. Is there a difference in academic perseverance (BEL-S) before and after participating in the summer bridge program?
- c. Is there a difference in academic mindsets (BEL-S) before and after participating in the summer bridge program?
- d. Is there a difference in learning strategies (BEL-S) before and after participating in the summer bridge program?
- e. Is there a difference in additional factors (BEL-S) before and after participating in the summer bridge program?

RQ2: Is there a difference in noncognitive factors related to college readiness between students who were admitted to the institution, eligible to enroll, and attending new student orientation compared to students who were conditionally admitted to the institution based on completion of the summer bridge program?

Research Design

This quantitative study utilized survey methodology with one primary measurement instrument. This instrument was administered as a pre- and post-survey for summer bridge program participants and as a one-time survey for incoming first-year students not participating in the summer bridge program. The purpose of this design was to compare differences in mean scores of noncognitive factors of college readiness for

participants before and after participating in the summer bridge program. Few studies on summer bridge programs have attempted to measure growth over the summer (Ami, 2001). Additionally, the purpose of this design was to compare differences in mean scores of noncognitive factors of college readiness for participants of the summer bridge program compared to participants who required no remedial interventions to enroll at the postsecondary institution hosting the summer bridge program. The use of a comparison group is beneficial because many past studies on summer bridge programs have failed to utilize a comparison group (Sablan & Tierney, 2016). The use of a comparison group is also beneficial because past studies often relied on institutional measures of achievement, including GPA and retention rates, in place of looking at individual factors of interest (Murphy, Gaughan, Hume, & Moore, 2010).

Summer Bridge Program Structure

Information in this section was received from staff members associated with the development and implementation of the summer bridge program of interest (D. Bland, personal communication, July 24, 2018). The population for this study was high school graduates in the Southeast region of the United States who applied to the researcher's host institution. They were identified by the institution's admissions office as having lower standardized test scores and lower GPAs. Individuals in the population met one or more of the following academic criteria: a high school GPA ranging from 2.5 to 3.8, a composite ACT score of 16 or 17, and/or a Scholastic Aptitude Test (SAT) score of 850 to 900. In addition to demonstrating academic deficiencies, high school students identified by the admissions office as a part of the population had a financial expected

family contribution (EFC) of \$0 to \$400, determined by information from the Free Application For Federal Student Aid (FAFSA). Consideration was also given to students who attended rural high schools. An individual's admission to the institution was contingent upon successful completion of the summer bridge program. A total of 40 individuals consented to participate in the summer bridge program (D. Bland, personal communication, July 24, 2018).

The summer bridge program was a 5-week, residential program hosted at the researcher's institution. The summer bridge program was intended to provide a rigorous academic experience for students who required additional academic preparation to transition from the high school classroom to the college environment, provide students the opportunity to create a network of professional resources that could assist them academically and socially as they persist at a postsecondary institution, and expose students to the postsecondary institution and the surrounding community to create a sense of belonging. Participants were required to enroll in Biology 105, Biology lab, and English 101. Participants received college credits if they successfully completed these courses. Each week, students attended classes, completed hybrid coursework, and attended study halls every Monday through Thursday from 9:00 am to 8:30 pm. On Fridays, participants engaged in co-curricular activities including service trips, tours of local museums, and team-building events through the institution's recreation center. On Saturdays, participants engaged in recreational activities such as bowling, laser tag, and visiting a local water park. After completion of the summer bridge program, participants were required to enroll in a cohort-based First-Year Experience course taught by the

program's staff as well as live together in a residence hall (D. Bland, personal communication, July 24, 2018).

Participants

In this study, convenience sampling was used to select participants from the population. Convenience sampling is a type of nonprobability sampling in which subjective methods are used to identify participants for a study. It allows for exploration of a hypothesis that has potential to provide insights on a topic that can be followed by a test that utilizes probability sampling (Lavrakas, 2008). The purpose of this study was well served by convenience sampling because the researcher was able to gain access to already established groups of individuals participating in a summer bridge program as well as incoming first-year students through orientation sessions.

Participants were 57 recent high school graduates who applied to attend the researcher's institution as incoming first-year students for the Fall 2018 semester. Of the 57 participants, 10 participants attended the summer bridge program and completed the survey as a pre- and post-assessment. Forty individuals were participating in the summer bridge program, but 29 individuals were either not eligible to participate in the study due to not being 18 years of age and/or did not complete the pre-survey and/or post-survey, and one individual did not consent to participate in the study. The response rate for this sample population ($n=10$) was 25%. The remaining 47 participants were incoming first-year students who were not invited to participate in the summer bridge program but did attend summer orientation sessions and were used as a comparison group.

The sample population of individuals who were participating in the summer bridge program was obtained by contacting the summer bridge program director to obtain permission (see Appendix A) to conduct an in-person recruitment for administering the pre- and post-survey (see Appendix C). The sample population of the comparison group was obtained by contacting the Director of New Student Transitions and First Year Experience for permission (see Appendix B) to recruit qualified individuals through an email script with an anonymous survey link (see Appendix D) to participate in the study. Emails were provided to the researcher for 1,122 incoming students who attended orientation sessions over the summer. No incentives to participate were provided. The response rate for the comparison group ($n=47$) was 4.2%.

Procedures

Before administering the survey instrument, approval was sought from the Institutional Review Board (IRB) at the researcher's host institution. Minors were excluded from the research study. IRB procedures required that students agree to a consent statement (see Appendix E) before completing the survey. Students had the option to refuse consent and not participate in the study. Data was stored in a confidential location per IRB requirements. The researcher distributed the survey through email and participants completed the survey hosted on Qualtrics software through an anonymous link. The survey contained a question for participants to create a unique identifier to allow for the researcher to match pre- and post-survey data.

To collect data from participants of the summer bridge program, the researcher attended a study hall session during the first weekend of the summer bridge program to

conduct an in-person recruitment. The pre-survey was distributed through email and summer bridge program participants were able to access the survey hosted on Qualtrics software through an anonymous link. An identical procedure was utilized to administer the post-survey to summer bridge program participants at the last study hall session of summer bridge program. Individuals in the comparison group were invited to complete the post-survey through email recruitment. To collect data for the comparison group, incoming first-year students who were registered to attend summer orientation sessions received an email to access the survey hosted on Qualtrics software through an anonymous link.

There was a possibility that some individuals received more than one invitation to participate in the study due to summer bridge program participants receiving the email recruitment while participating in orientation sessions. To prevent individuals from completing the survey more than once, individuals participating in the summer bridge program were asked to complete the survey only once during the study hall session. The survey also contained a question addressing participation in the summer bridge program of interest to further guard against individuals completing the survey more than once.

Instrumentation

Becoming Effective Learners Student Survey (BEL-S)

The availability of instruments to measure noncognitive factors is limited (Farrington et al., 2013). Mathematica Policy Research conducted a landscape analysis of 196 identified instruments used to measure noncognitive factors and found that only 17% of measures had some evidence of validity (Atkins-Burnett, Fernandez, Akers, Jacobson,

& Smither-Wulsin, 2012). Due to the lack of valid instruments available, Farrington and colleagues (2013) conducted the BEL-S development project in collaboration with the University of Chicago Consortium on School Research to create a reliable and validated survey instrument for purposes of basic research and formative/diagnostic assessment related to noncognitive factors (Farrington, 2018). The goal of the survey development project was to bring together concepts from long lines of research with previously well-developed instruments and incorporate the relationship with other noncognitive factors. The survey is intended to gather data on key concepts among the five domains of noncognitive factors discussed in the previous chapter in order to inform teaching, learning, and the relationship of noncognitive factors to student course performance. The BEL-S (see Appendix F) was used in the current study to address research questions. Due to the recent development of the instrument, researchers at the University of Chicago Consortium on School Research are currently conducting reliability and validity tests and data is not yet available. This survey instrument best fit the purpose of the current study because it was derived from previously developed instruments that address specific noncognitive factors and combines multiple factors into a comprehensive assessment. For example, Duckworth et al. (2007) developed the Grit Scale with 12 items and although this scale measures a noncognitive variable of interest for this study, it only measures one piece of the comprehensive framework of noncognitive factors related to college readiness.

The first six questions of the BEL-S were not used in this study because they ask about information related to a specific class. Items 19 and 24 through 27 were also

omitted because they are not relevant to noncognitive factors in a postsecondary context. Researchers used the remaining items from seven through 28 because they specifically related to the five previously described noncognitive factors and how they are represented by students in a general educational context (See Appendix F for full scale). The BEL-S items that were used in this study were differentiated into five constructs that align with the noncognitive factors of college readiness created by Farrington et al. (2012). They included academic behaviors, academic perseverance, academic mindsets, learning strategies, and additional factors. There were a total of 18 items measured on Likert scales, which vary for each item. Specific scales were provided for each question that the participant answered.

The first construct, academic behaviors, was measured by four items (late, skip, homework, and participation/studying). For example, the following question was used to measure participation/studying:

Across all of your classes, how OFTEN do you:

1. Do the readings or other assigned work to prepare for class.
2. Turn in assignments on the due date.
3. Actively participate in class.
4. Have all of my class materials with me.
5. Do more than what is expected of me.
6. Spend extra time outside of class to make sure I am well-prepared for each lesson.

Response options: *Never, Once in a while, About half the time, Most of the time, Always*

The second construct, academic perseverance, was measured by three items (self-regulation, academic delay of gratification, and grit). For example, the following question was used to measure grit.

How TRUE are the following about you:

1. I am a hard worker.
2. I finish whatever I begin.
3. I continue steadily towards my goals.
4. I don't give up easily.
5. I don't stop until I complete what I set out to do.

Response options: *Not at all true, A little true, Somewhat true, Mostly true, Completely true*

The third construct, academic mindsets, was measured by six items (academic identity, theories of intelligence, performance avoid, self-efficacy, relevance to future, and motivation). For example, the following question was used to measure academic identity.

How TRUE are the following about you:

1. Doing well in school is an important part of who I am.
2. Getting good grades is one of my main goals this year.
3. I am the kind of person who takes pride in doing my best in school.

Response options: *Not at all true, A little true, Somewhat true, Mostly true, Completely true*

The fourth construct, learning strategies, was measured by two items (organization/time management and monitoring strategies). For example, the following question was used to measure organization/time management.

How TRUE are the following about you:

1. I keep track of my school assignments so I know when to turn them in.
2. I manage my time well enough to get all my schoolwork done.
3. I keep my schoolwork well organized.
4. I have a very effective system for managing all the things I have to do for school.

Response options: *Not at all true, A little true, Somewhat true, Mostly true, Completely true*

The last construct, additional factors, was measured by two items (belonging uncertainty and attendance). For example, the following question was used to measure belonging uncertainty.

When you think about next year, how true are the following:

1. Sometimes I worry that I will not belong in college.
2. I am anxious about fitting in at college.
3. I feel confident that I will feel like I belong in college.

Response options: *Not at all true, A little true, Somewhat true, Mostly true, Completely true*

Data Analysis

Descriptive statistics were obtained. To answer Research Question One (Does participation in the summer bridge program affect noncognitive factors related to student college readiness?), paired sample *t*-tests were conducted with Statistical Package for the Social Sciences (SPSS) to determine if there was a significant difference in survey responses of participants in the summer bridge program on the pre- and post-survey for each noncognitive factor (academic behaviors, academic mindsets, academic perseverance, learning strategies, and additional factors). A dependent *t*-test allows for

the comparison of means for matched pairs (Rencher, 2002). The researcher used Bonferroni corrections due to using multiple paired comparisons on a single set of data to reduce Type I error inflation (Rencher, 2002; Verma, 2015). Therefore, *t*-tests were conducted with a more stringent significance level ($\alpha = .01$) to determine significant differences for each of the noncognitive factors. Due to the small sample size of this study, results also include calculated effect sizes to determine the magnitude of differences between groups that were not detected by the *p*-value (Gliner, Vaske, & Morgan, 2001).

To answer Research Question Two (Is there a difference in noncognitive factors related to college readiness between students who were admitted to the institution and eligible to enroll compared to students who were conditionally admitted to the institution based on completion of the summer bridge program?) independent *t*-tests were conducted with SPSS. An independent *t*-test allows for the comparison of means for two unrelated groups (Rencher, 2002). This was used to determine if there were significant differences in noncognitive factors of college readiness between summer bridge program participants' post-survey responses and the comparison group.

CHAPTER IV

RESULTS

Introduction

As stated in Chapter I, the purpose of this study was to determine if recent high school graduates transitioning to college had significant differences in noncognitive skills that contributed to their overall college readiness over the course of a summer bridge program. This chapter is organized in relation to the two research questions presented in Chapter III. First, demographic information collected is described. Second, this chapter reports the results of statistical analyses of student responses on the BEL-S before and after completion of a summer bridge program. Last, it examines participant responses on the BEL-S who partook in the summer bridge program in relation to a comparison group of incoming first-year students who attended orientation sessions at the institution but did not participate in the summer bridge program.

Demographic Statistics

The following section describes demographic characteristics of the study's participants. Among the summer bridge program's 10 participants, eight participants (80.0%) identified as female and two participants (20.0%) identified as male. Among the comparison group (47 participants), $n=43$ (91.5%) participants identified as female and $n=4$ (8.5%) participants identified as male (see Table 1). In general, the host institution has a higher percentage of female students on campus, so this is not inconsistent.

Table 1

Gender Demographics

Gender	Summer Bridge Program		Comparison	
	<i>n</i>	%	<i>n</i>	%
Female	8	80.0	43	91.5
Male	2	20.0	4	8.5
Total	10	100.0	47	100.0

The following statistics describe the reported race of summer bridge program participants: $n=3$ (30.0%) identified as Black/African American, $n=2$ (20.0%) identified as White, $n=1$ (10.0%) identified as Black/White, $n=1$ (10.0%) identified as White/other, $n=2$ (20.0%) identified as other, and $n=1$ (10.0%) preferred not to respond. The following statistics describe the reported race of comparison group participants: $n=2$ (4.3%) identified as Asian, $n=15$ (31.9%) identified as Black/African American, $n=21$ (44.7%) identified as White, $n=1$ (2.1%) identified as American Indian or Alaskan Native, $n=2$ (4.3%) identified as Black/White, $n=1$ (2.1%) identified as Asian/White, $n=1$ (2.1%) identified as Black/American Indian or Alaskan Native/Other, $n=3$ (6.4%) identified as other, and $n=1$ (2.1%) preferred not to respond (see Table 2).

Among the summer bridge program participants, $n=3$ (30.0%) reported attending an urban high school, $n=3$ (30.0%) reported attending a suburban high school, and $n=4$ (40.0%) reported attending a rural high school. Among the comparison group participants, $n=13$ (27.7%) reported attending an urban high school, $n=23$ (48.9%)

reported attending a suburban high school, and $n=11$ (23.4%) reported attending a rural high school (see Table 3).

Table 2

Race Demographics

Race	Summer Bridge Program		Comparison	
	<i>n</i>	%	<i>n</i>	%
Asian	0	0.0	2	4.3
Black/African American	3	30.0	15	31.9
White	2	20.0	21	44.7
American Indian or Alaskan Native	0	0.0	1	2.1
Black/White	1	10.0	2	4.3
White/other	1	10.0	0	0.0
Asian/White	0	0.0	1	2.1
Black/American Indian or Alaskan Native/Other	0	0.0	1	2.1
Other	2	20.0	3	6.4
No response	1	10.0	1	2.1

Table 3

High School Type

School	Summer Bridge Program		Comparison	
	<i>n</i>	%	<i>n</i>	%
Urban	3	30.0	13	27.7
Suburban	3	30.0	23	48.9
Rural	4	40.0	11	23.4

Participants reported receiving multiple types of financial aid. Among the summer bridge program participants, $n=6$ (60.0%) received Pell Grants, $n=2$ (20.0%) received other types of grants, $n=2$ (20.0%) received scholarships, $n=5$ (50.0%) received loans, and $n=2$ (20.0%) did not qualify for financial aid. Among the comparison group participants, $n=19$ (40.3%) received Pell Grants, $n=11$ (23.4%) received other types of grants, $n=24$ (51.1%) received scholarships, $n=39$ (83.0%) received loans, and $n=4$ (8.5%) did not qualify for financial aid (see Table 4).

Table 4

Financial Aid Received

Type	Summer Bridge Program		Comparison	
	<i>n</i>	%	<i>n</i>	%
Pell Grant	6	60.0	19	40.4
Other grants	2	20.0	11	23.4
Scholarships	2	20.0	24	51.1
Loans	5	50.0	39	83.0
Did not qualify	2	20.0	4	8.5

The following statistics describe the reported GPAs of summer bridge program participants: $n=1$ (10.0%) reported a GPA between 2.5 and 3.0, $n=3$ (30%) reported a GPA between 3.01 and 3.5, $n=5$ (50.0%) reported a GPA between 3.51 and 4.0, and $n=1$ (10%) did not respond. The following statistics describe the reported GPA of comparison group participants: $n=1$ (2.1%) reported a GPA between 2.5 and 3.0, $n=7$ (14.9%) reported a GPA between 3.01 and 3.5, $n=17$ (36.2%) reported a GPA between 3.51 and

4.0, $n=14$ (29.8%) reported a GPA between 4.01 and 4.5, and $n=8$ (17.0%) reported a GPA between 4.5 and 5.0 (see Table 5).

Table 5

Reported GPA

GPA	Summer Bridge Program		Comparison	
	<i>n</i>	%	<i>n</i>	%
2.5 – 3.0	1	10.0	1	2.1
3.01 – 3.5	3	30.0	7	14.9
3.51 – 4.0	5	50.0	17	36.2
4.01 – 4.5	0	0.0	14	29.8
4.5 – 5.0	0	0.0	8	17.0
No response	1	10.0	0	0.0

The following statistics describe the reported ACT scores of summer bridge program participants: $n=1$ (10%) reported an ACT score between 0 and 16, $n=6$ (60%) reported an ACT score between 17 and 20, $n=1$ (10%) reported an ACT score between 21 and 24, and $n=2$ (20.0%) did not respond. The following statistics describe the reported ACT scores of comparison group participants: $n=1$ (2.1%) reported an ACT score between 0 and 16), $n=12$ (25.5%) reported an ACT score between 17 and 20, $n=17$ (36.2%) reported an ACT score between 21 and 24, $n=6$ (12.8%) reported an ACT score between 25 and 28, $n=2$ (4.3%) reported an ACT score between 29 and 32, and $n=9$ (19.1%) did not respond (see Table 6). Although data were collected on reported SAT scores, the item response rate was low (20.0% response rate of summer bridge program participants). This potentially can be a result of a state-wide initiative to administer the

ACT to high school students for free, such that students are not registering to take the SAT and do not have scores to report.

Table 6

Reported ACT Score

ACT Score	Summer Bridge Program		Comparison	
	<i>n</i>	%	<i>n</i>	%
0 – 16	1	10.0	1	2.1
17 – 20	6	60.0	12	25.5
21 – 24	1	10.0	17	36.2
25 – 28	0	0.0	6	12.8
29 – 32	0	0.0	2	4.3
No response	2	20.0	9	19.1

Research Questions

Research Question 1: Does participation in the summer bridge program affect noncognitive factors related to student college readiness?

- a. Is there a difference in academic behaviors (as measured in the BEL-S) before and after participating in the summer bridge program?*
- b. Is there a difference in academic perseverance (BEL-S) before and after participating in the summer bridge program?*
- c. Is there a difference in academic mindsets (BEL-S) before and after participating in the summer bridge program?*
- d. Is there a difference in learning strategies (BEL-S) before and after participating in the summer bridge program?*

- e. Is there a difference in additional factors (BEL-S) before and after participating in the summer bridge program?*

The relationship between summer bridge program participants' noncognitive factors related to college readiness before and after participation in the summer bridge program was measured by paired sample *t*-tests, with levels of noncognitive factors as the dependent variable and participation in the summer bridge program as the independent variable. Effect sizes were also reported to examine the magnitude of the difference between pre- and post-survey responses despite the small sample size (Ellis, 2010). Table 7 displays the results of the paired *t*-test for BEL-S responses for the pre- and post-survey scores ($n = 10$). The paired *t*-test revealed that there was no significant difference, $t(9) = -1.14, p > .01$, in academic behaviors and the null hypothesis was accepted. The effect size ($d = 0.49$) was moderate. The paired *t*-test revealed that there was no significant difference, $t(9) = -2.17, p > .01$, in academic perseverance and the null hypothesis was accepted. The effect size ($d = 0.58$) was moderate. The paired *t*-test revealed that there was a significant difference, $t(9) = 3.69, p < .01$, in academic mindsets and the alternative hypothesis was accepted. The effect size ($d = 1.46$) was large. The paired *t*-test revealed that there was no significant difference, $t(9) = -1.13, p > .01$, in learning strategies and the null hypothesis was accepted. The effect size ($d = 0.53$) was moderate. The paired *t*-test revealed that there was no significant difference, $t(9) = 0.0, p > .01$, in additional factors and the null hypothesis was accepted. See Table 7.

Table 7

T-test Comparison of Pretest and Posttest Scores of Noncognitive Factors

Matched Pair Sample	<i>N</i>	Pretest <i>M</i> (<i>SD</i>)	Posttest <i>M</i> (<i>SD</i>)
Academic Behavior	10	32.40 (3.41)	34.10 (3.60)
Academic Perseverance	10	45.50 (7.29)	50.50 (9.70)
Academic Mindsets	10	104.50 (8.18)	87.80* (13.95)
Learning Strategies	10	29.50 (5.38)	32.10 (4.31)
Additional Factors	10	12.10 (2.13)	12.10 (2.18)

Note. *M* = mean; *SD* = standard deviation; **p* < .01

Research Question 2: Is there a difference in noncognitive factors related to college readiness between students who were admitted to the institution, eligible to enroll, and attending new student orientation compared to students who were conditionally admitted to the institution based on completion of the summer bridge program?

Independent *t*-tests with student groups (incoming first-year students or summer bridge program participants) as independent variables and ratings of noncognitive factors as dependent variables were conducted to determine if summer bridge program participants had similar levels of college readiness in relation to noncognitive variables as incoming first-year students. Table 8 displays the results of the independent *t*-tests for BEL-S responses of summer bridge program participants and the comparison group (*n* = 57).

The independent *t*-test for academic behaviors revealed that there was no significant difference ($t(55) = .287, p > .05$). The independent *t*-test for academic perseverance revealed that there was no significant difference ($t(55) = -.534, p > .05$).

The independent t -test for academic mindsets revealed that there was no significant difference ($t(55) = .276, p > .05$). The independent t -test for learning strategies revealed that there was no significant difference ($t(55) = -.068, p > .05$). The independent t -test for additional factors revealed that there was no significant difference ($t(55) = .393, p > .05$). Effect sizes for each of the five variables were small. The following chapter discusses research findings, limitations of the study, and implications for future practices and research.

Table 8

T-test Comparison of Noncognitive Factors of Two Independent Groups

Variable	Summer Bridge Program <i>M</i> (<i>SD</i>)	Comparison <i>M</i> (<i>SD</i>)
Academic Behaviors	34.10 (3.60)	34.49 (3.95)
Academic Perseverance	50.50 (9.70)	48.81 (8.98)
Academic Mindsets	101.50 (15.59)	103.06 (16.40)
Learning Strategies	32.10 (4.31)	31.98 (5.30)
Additional Factors	12.10 (2.18)	12.49 (2.96)

Note. M = mean; SD = standard deviation; $n = 10$ (Summer Bridge Program; $n = 47$ (Comparison)).

CHAPTER V

DISCUSSION

Introduction

Currently, a majority of research and literature that addresses college readiness focuses on students' cognitive mastery of content, which lacks the capacity to capture the multifaceted concept of college readiness that includes noncognitive factors (Conley, 2008; Farrington et al., 2012; Sedlacek, 2010; Zwick & Himelfard, 2011). Often, noncognitive factors of college readiness are studied in isolation and research that aims to integrate college readiness factors into a central theory is needed (Sommerfeld, 2011). There is a need for educational practices to shift from using standardized test scores as measures of college readiness towards a more comprehensive measurement that considers factors beyond cognitive preparedness (Conley, 2007; Farrington et al., 2012) to enhance the success of students in a postsecondary educational environment (Gaertner et al., 2016). Conley (2007) and Farrington et al. (2012) have organized college readiness factors into comprehensive models that are driving the forward momentum of research on preparing students to meet the demands of postsecondary education. Despite attempts to address college readiness interventions in more consistent ways, the literature is fragmented and there are mixed findings concerning the effectiveness of interventions on noncognitive factors, including summer bridge programs (Sablan, 2014; Strayhorn, 2011; Swail, 2000).

The purpose of this study was to examine the impact of a summer bridge program intervention on the development of noncognitive factors related to college readiness. This chapter will discuss research findings, limitations, and implications for future practices and research.

Discussion of Results

For Research Question 1, a review of the analyses found that there was a significant difference in academic mindsets of college readiness in participants before and after a summer bridge program intervention indicating that there were differences in participant responses on pre- and post-survey items related to mindsets. No significant differences were found for constructs addressing academic behaviors, academic perseverance, learning strategies, and additional factors. For Research Question 2, no significant differences in noncognitive factors of college readiness were found between summer bridge program participants and the comparison group. Non-significant results indicate that no differences in participants' responses were observed for the noncognitive constructs measured.

High school graduates were selected to participate in the summer bridge program based on their standardized test scores and high school GPA, which are currently the most convenient measures of college readiness. These measurements often fail to capture other facets of college readiness, including noncognitive factors (Conley, 2007; NAESP, n.d.; Sedlacek, 2010). Standardized tests with benchmarks only capture the likelihood that a student will earn good grades in college courses but do not address an “intuitive understanding of college readiness” (Klasik & Strayhorn, 2018, p. 1). For example, the

ACT benchmarks are based on data from 75 4-year and 68 2-year postsecondary institutions, although there are over 4,000 postsecondary institutions in the country and treats students as a uniformed group without considering context (Allen, 2013).

Benchmarks are used to determine if students need to enroll in remedial coursework and it is more common for underrepresented students to be placed in remedial courses (Attewell et al., 2006; Chen & Simone, 2016), which decreases the likelihood of college persistence and completion (Attewell & Domina, 2008; Kazis, 2006). Underrepresented students often have fewer opportunities in a secondary education setting to engage in rigorous coursework and less access to college preparation resources; therefore, they are not as academically prepared as their peers when enrolling at a postsecondary institution (Cates & Schaeffle, 2011).

Participants' levels of noncognitive development were unknown before students started the program. It is possible that students who participated in the summer bridge program of interest were inaccurately labeled as not ready for college in regard to noncognitive factors due to the inability of standardized tests to capture noncognitive levels of college readiness and contextual considerations (Conley, 2007; NAESP, n.d.; Sedlacek, 2010), which can potentially result in inaccurate predictions of students' likelihood of success in a postsecondary educational environment. Standardized testing "ignores that indicators of readiness may differ according to students' backgrounds and where they choose to enroll in college" (Klasik & Strayhorn, 2018, p. 1). Standardized testing places an emphasis on cognitive factors of college readiness and fails to address noncognitive factors that aid in a student's academic success, indicating that key factors

that contribute to college readiness are not being captured by current measures. Students from various backgrounds are facing challenges of access in education (Lunceford et al., 2017; Roderick et al., 2008).

A challenge in education and research has been to create a measurement of college readiness that is comprehensive, such that it captures factors beyond cognitive abilities and also considers context (Klasik & Strayhorn, 2018). However, potential problems may arise when measuring noncognitive abilities in a high-stakes context like college admissions (Niessen, Meijer, & Tendeiro, 2017). There is a lack of systems available to intentionally align high school expectations with expectations of postsecondary education (Conley, 2007), contributing to difficulty in designing programs to meet the needs to incoming students. K-12 student competencies are not aligned with postsecondary expectations and create perplexity in the understanding of skills students need to possess to be successful in college. Efforts, such as Conley's CRI, are striving to address this gap in vertical alignment (Gaertner et al., 2016), although the complexity of elements in more comprehensive college readiness models are cumbersome for tracking national trends (Klasik & Strayhorn, 2018). The goal of creating the CRI was to be able to track a student's readiness at any given point in time, which could also be tracked over time to measure levels of development, potentially from middle school to college. This allows for educators at various levels to align curriculum and interventions to meet the same outcomes (Conley, 2007).

The following section discusses significant findings related to academic mindsets. The following section also discusses tentative explanations of calculated effect sizes to

further investigate practical differences in noncognitive factors. Statistical non-significance and a small sample size resulted in a lack of power to detect significant differences if they exist. However, though the sample size was small, the effect sizes were not negligible with respect to academic behaviors, academic perseverance, and learning strategies.

Research Question 1: Does participation in the summer bridge program affect noncognitive factors related to student college readiness?

Academic Mindsets

Results of the analyses show that there was a statistically significant difference in academic mindsets for participants before and after the summer bridge program indicating that the intervention affected student responses on the pre- and post-survey for items addressing this construct. The effect size for the survey items addressing academic mindsets was large ($d = 1.46$). Academic mindsets are “the psychosocial attitudes or beliefs one has about oneself in relation to academic work” (Farrington et al., 2012, p. 9). They are important to consider when addressing college readiness because students’ view of themselves and how they think others view them can influence their levels of motivation and performance related to coursework (Wilson, 2006). For example, students are more likely to demonstrate positive academic performance when engaging in a growth mindset because they are more willing to build competence, be self-motivating, and persist at academic tasks (Cury et al., 2006; Dweck & Leggett, 1988). Students who participated in the summer bridge program had lower high school GPAs and standardized test scores and were aware that they needed to improve their academic performance to

enroll at the institution due to being conditionally admitted. Potentially, agreeing to participate in the summer bridge program indicated their willingness to develop skills to increase their college readiness, demonstrating a growth mindset. Program elements, such as having advisors who track student progress and provide support in areas of need, can cultivate a growth mindset and indicate to students that there are actions that can be taken to foster individual growth (Han et al., 2017).

An academic mindset, self-efficacy, which is a students' beliefs about the likelihood that they will be successful at a certain task, impact the degree to which they put forth effort that enhances academic behaviors and performance (Bandura, 1986; Bandura & Schunk, 1981; Farrington et al., 2012). Past research has shown that interventions to enhance self-efficacy are particularly important for incoming first-year students and impacts academic performance (Han et al., 2017). Proximal goal setting to encourage self-directed learning and encouragement from role models to increase self-motivation impact a student's self-efficacy (Bandura & Schunk, 1981). Due to the context-dependent nature of self-efficacy (Bouffard-Bouchard, 1990), interventions that offer increased levels of support, such as the summer bridge program, can have an impact on students' beliefs about the likelihood that they will be successful on an academic task (Han et al., 2017; Wilson, 2006). An informal intervention to enhance self-efficacy involves the interaction of staff and faculty with students through the intentional development of relationships. Staff and faculty associated with the summer bridge program can measure students' levels of self-efficacy and if low levels are found, they

can be purposeful in their communication with students to promote self-efficacious beliefs (Han et al., 2017).

Research has shown that group membership is the most consistent predictor of student grades over time (Wentzel & Caldwell, 1997) and students who feel like they belong in a certain educational community tend to have positive academic behaviors (Cohen & Garcia, 2008). A sense of belonging can contribute to students' development of noncognitive college readiness factors because it encourages students to engage in positive behaviors exhibited by peer modeling as well as seeking support from faculty and staff associated with their academic community (Farrington et al., 2012). The summer bridge program in this study was intentional in targeting students with specific demographics. Therefore, students who participated in the summer bridge program had peers who were similar to them. It is possible that peer similarities facilitated feelings of connectedness such that they felt comfortable and experienced a genuine belongingness in the academic and social community. The summer bridge program also included elements that encouraged prosocial interactions, including recreational outings and team building activities that could have contributed to feelings of group belonging by encouraging bonding. Sense of belonging is associated with first- to second-year retention in students (Han et al., 2017), which highlights the importance of social adjustment and relationships in college (Chickering & Reisser, 1993; Han et al., 2017). Interventions related to sense of belonging can be provided through opportunities before students begin their first year of college, including summer bridge programs and orientation sessions (Han et al., 2017). Group membership for participants will continue

into the upcoming academic year through a residential community, which further reinforces the value of group interactions in creating a sense of belonging. In addition to group membership, a sense of belonging can also be fostered through student-faculty relationships that promote engagement and feelings of connectedness (Han et al., 2017). During this transitional phase in their lives, students are seeking out sources of support to become adjusted to a new educational environment (Schlossberg et al., 1995). Key transition skills and knowledge are critical in adjusting to a new environment and contribute to students' overall college readiness (Conley, 2007).

It is possible that participants' mindsets were influenced by the supportive environment of the summer bridge program, including academic support from instructors and social support from program staff, because academic mindsets are fundamentally creations of context (Farrington et al., 2012). Participants in the summer bridge program had consistent communication with course instructors and had meetings with advisors to discuss progress within the program that also acted as a resource of social capital. Student development occurs in the presence of providing challenges coupled with increased support (Evans et al., 2010). Oftentimes, underrepresented students, including low SES and rural students, attend secondary schools that do not have access to resources, rigorous coursework, and social capital (Attewell & Domina, 2008; Kazis, 2006; Reardon, 2011; Roscigno & Crowley, 2001). Increased support in these areas as students transition to a postsecondary setting can aid in their development (Schlossberg et al., 1995) by altering the way students view their education in relation to their abilities (Farrington et al., 2012) and the value they place on academic tasks in relation to their future (Eccles & Wigfield,

1995). Students are especially vulnerable during a period of transition in regard to their academic mindsets because they are experiencing new academic demands (Conley, 2003). At this stage it is important to provide students with the support necessary to aid in the adaptation to the new environment and successfully transfer their existing beliefs to positively impact academic performance (Bransford et al., 2000; Credé & Kuncel, 2008; Farrington et al., 2012; Scholssberg et al., 1995), which is necessary to enhance their levels of college readiness to produce positive academic outcomes.

Academic Behaviors

Non-significant results were found for academic behavior items, but the effect size was not negligible. The effect size for the survey items addressing academic behaviors was moderate ($d = .485$). Possibly engaging in college coursework (Biology 105/English 101) during the summer bridge program encouraged participants to reflect on the importance of positive academic behaviors in relation to grades in a postsecondary setting. For example, homework completion is a tangible task that directly impacts academic performance and is a predictor of course grades (Keith, 1982). Students were required to attend study hall sessions, which provided them with an opportunity to complete homework. Difference in expectations between secondary and postsecondary education are different and college coursework requires more skills to be successful (Conley, 2007). Summer bridge programs that provide students the opportunity to engage in college level coursework before their first year has potential to expose students to expectations of higher education and behaviors such as homework completion, studying, and participation, which are critical for academic success (Sablan, 2014).

Academic Perseverance

Non-significant results were found for academic perseverance items, but the effect size was not negligible. The effect size for the survey items addressing academic perseverance was moderate ($d = .583$). Potentially, variation in survey responses related to self-regulation, academic delay of gratification, and grit could be related to the structure of the summer bridge program. Participants were required to attend evening study hall sessions. Although study halls were required, experiencing the benefits of being successful in a college course by focusing on academic tasks before engaging in social activities could have helped students understand the importance of using self-control to focus on an academic task (Duckworth et al., 2007; Michael, Dickson, Ryan, & Koefer, 2010), which is a skill that can be transferred to future coursework that they will complete without the structured study hall component of the summer bridge program. As students are transitioning to a postsecondary setting, they have opportunities to develop direct action strategies to be successful in their coursework (Schlossberg et al., 1995). Highly self-disciplined students typically outperform their peers on academic measures such as tests (Duckworth & Seligman, 2005). Academic perseverance is important because it enables students to focus on long-term and higher-order goals, which is essential to reach long-term academic goals (Dweck et al., 2014).

Learning Strategies

Non-significant results were found for learning strategy items, but the effect size was not negligible. The effect size for the survey items addressing learning strategies was moderate ($d = .534$). The structure of the summer bridge program potentially

demonstrated to participants an effective way to utilize study skills including organizing academic materials, time management, self-monitoring, and goal setting to produce positive academic outcomes, which can be internalized and transferred to their future postsecondary experiences. The systematic technique of scaffolding can be used to move students towards a level of greater independence and requires students to take an active role in their learning (Michael et al., 2010).

For example, first-year students often have difficulty regulating self-study skills and interventions such as a summer bridge program can play an active role in helping students develop self-monitoring skills (van der Meer, Jansen, & Torenbeek, 2010). Students with self-monitoring skills understand their current level of mastery of a subject, reflect on abilities, and utilize multiple learning strategies (Bransford et al., 2000). During study hall sessions, program staff actively monitored students' progress on their coursework. Students were directed to complete specific tasks and throughout the course of the program, there was potential for students to plan and direct their own course of action during study hall sessions to complete academic tasks.

As students transition from secondary to postsecondary education, they experience a wave of expectations to leverage independence to engage in educational activities (Conley, 2008; Schlossberg et al., 1995). Student success in higher education requires a more dynamic level of skillsets (Conley, 2007). In a secondary education setting, students may be expected to organize course materials based on the teacher's instructions. However, in a postsecondary setting, students are expected to make more personal decisions related to their academics (Schlossberg et al., 1995). For example,

throughout the summer bridge program, students were exposed to novel ways to organize academic materials. Students were required to use laptops to complete coursework and had access to online resources from the course instructors. Students had to navigate how to organize lecture notes, articles, and PowerPoint lectures electronically to be able to effectively complete coursework.

The following section discusses the results of Research Question 2.

Research Question 2: Is there a difference in noncognitive factors related to college readiness between students who were admitted to the institution, eligible to enroll, and attending new student orientation compared to students who were conditionally admitted to the institution based on completion of the summer bridge program?

Initially, the researcher intended to perform a multivariate analysis of variance (MANOVA). However, due to the small sample size, a univariate analysis was better suited in relation to sample size and number of variables in the analysis. There were no significant differences found from independent *t*-test analyses when comparing levels of readiness on noncognitive factors between incoming first-year students who did not participate in the summer bridge program and students who did participate in the summer bridge program. This indicates that differences in noncognitive factors were not captured by the current measure in an underpowered study or were not present. Potentially, summer bridge program participants previously faced challenges in their education and developed transferable skills that they utilized when entering into a novel educational environment, demonstrating their resilience and adaptability when encountering unfamiliar tasks presented to them during the course of the summer bridge program.

Based on descriptive data collected, it is evident that levels of secondary academic achievement differed between the two groups of students. Seventy percent of summer bridge program participants score 20 or lower on the ACT compared to 27.6% of students in the comparison group. Ninety percent of summer bridge program participants had a GPA lower than 4.0 compared to 53% of student in the comparison group. Additionally, 80% of summer bridge program participants identified with a minority race compared to approximately 55% of students in the comparison group. Sixty percent of summer bridge program participants received a Pell Grant compared to approximately 40% of students in the comparison group. Forty percent of summer bridge program participants attended a rural secondary institution compared to approximately 23% of students in the comparison group.

These data may exemplify barriers related to access that underrepresented students face in education. The majority of the students in the summer bridge program were low SES minority students. Lower performance on the ACT and lower GPAs is not solely a function of cognitive abilities. Research has shown that underrepresented students' college GPA is predicted at a higher error rate when using traditional measures, such as the ACT (Zwick & Himelfard, 2011). Demographic factors impact the quality of schooling to which a student has access, meaning that this population has less access to resources, rigorous courses, and social support structures in a secondary education environment (Kazis, 2006; Reardon, 2011). School characteristics are critical in supporting students' educational attainment (Irvin et al., 2011). The lower GPAs of summer bridge program participants could potentially be a product of attending schools

that do not offer as many honors and advanced placement courses, do not have test preparation resources, and do not have appropriate numbers of support staff (Kazis, 2006; Reardon, 2011). This population typically has fewer opportunities for development in an educational context, which impacts their performance in a high-stakes setting. Often, college admissions procedures do not consider contextual factors that impact academic performance due to using convenient measures of college readiness, like standardized testing (Conley, 2007; NAESP, n.d.; Sedlacek, 2010). Students in the summer bridge program may possess the ability to be college ready, but are potentially unfairly labeled as not ready for college due to barriers they face in primary and secondary educational settings (Sedlacek, 2010; Zwick & Himelfard, 2011), further underscoring the limits of cognitive only approach to college readiness.

Results from this study indicated that there were significant differences in academic mindsets of students before and after participation in the summer bridge program. Effect sizes for non-significant constructs were calculated to further investigate practical differences in survey responses and it was determined that there was a moderate effect for noncognitive factors of academic behaviors, academic perseverance, and learning strategies. Results were interpreted with caution due to the small sample size and cannot be applied to the larger population of incoming first-year students.

Limitations

In this study, convenience sampling was used for participant selection, which is a type of nonprobability sampling in which subjective methods are used to identify participants for a study (Lavrakas, 2008). This study is not based on the random

assignment of students into treatment groups, which prevents results from being generalized to the larger population (Tipton & Olsen, 2018). Interpretations of this study are limited to the participants of the summer bridge program of interest.

In addition to the use of an already established group of students for the sample, the sample was small. Using G*Power calculations, a sample size of 71 participants is needed to have a power of 0.8 and a significance level of 0.05 for the paired *t*-tests. This is necessary to reduce the possibility of Type II errors and correctly reject a false null hypothesis (Verma, 2016). The researcher only had access to 40 participants for the current study due to the design of the summer bridge program and 10 participants completed both the pre- and post-survey. In researching summer bridge programs, it is difficult to obtain a larger sample size due to the nature of summer bridge programs. They are often limited by the number of students they can serve due to funding and resources (Kodama et al., 2016). They are also interventions designed to target a smaller group of students to be able to work closely with students.

Survey completion is a limitation in this study. Of the 40 summer bridge program participants, there were only ten students who completed the pre- and post-survey entirely. The study hall session the researcher attended to collect post-survey data was optional for students and impacted participation rates. Issues of item nonresponse and unit nonresponse arose, contributing to an even smaller sample size. There were participants who only completed a portion of the survey as well as students who failed to complete the post-survey or did not report a unique identifier that could be matched with the pre-survey responses. Modifying procedural techniques to increase the response rate

would be beneficial to future studies. For example, the researcher can provide an incentive for survey completion as well as include minors in the study (individuals under the age of 18) to increase participation.

Issues of self-reporting could have contributed to the non-significant results. Social desirability bias, or the tendency of participants to answer survey questions based on what they think is more socially desirable to avoid negative evaluation, can impact the results of a study (Lavrakas, 2008). Students who participated in the summer bridge program could have provided answers that do not accurately reflect their abilities due to not wanting to be labeled as not ready for college, because successfully completing the program enabled them to enroll at the university in the fall. The researcher attempted to control for this by indicating in the consent form that responses on the survey would not impact their completion of the program.

This study did not utilize a control group due to the researcher's inability to determine if students in a control group were not receiving any outside intervention that impacts noncognitive factors of college readiness during the summer before entering college. It is common in summer bridge program literature for studies to not utilize a control group, which makes it difficult for researchers to attribute student outcomes to interventions provided by summer bridge programs (Walpole et al., 2008). However, a comparison group was utilized to compare summer bridge program participants to incoming first-year students at the same institution. The use of a comparison group is beneficial because it allows researchers to analyze individual factors of interest, such as

noncognitive factors instead of relying on institutional measures of achievement, including GPA and retention rates (Murphy et al., 2010).

Significance of Study

This research is important because it is creating awareness that traditional measures of college readiness do not fully measure all facets of college readiness (Bial & Rodriguez, 2007; Byrd & Macdonald, 2005; Sedlacek, 2010). Other areas need to be considered when determining how to meet the needs of students who aspire to enroll at a postsecondary institution. School counselors can provide students opportunities at the secondary level to enhance college readiness and act as an agent of social capital to provide information to students regarding topics including college knowledge and financial aid awareness, as well as teach students how to seek out support and resources that will contribute to their development as a student. College admissions representative can consider ways to expand their admissions criteria beyond standardized test scores to enhance access to education for underrepresented populations. For example, several institutions require students to submit an essay or personal statement when submitting an application, and other institutions are now hosting interviews with applicants. The shift in admissions criteria is a promising start to removing barriers for student populations that historically have less access to higher education.

The use of widely known college readiness models, such as Conley's (2007) college readiness model and Farrington and colleagues' (2012) noncognitive framework in the research is beneficial because it provides a foundational understanding of the complex concept of college readiness. It more clearly defines components of college

readiness compared to the fragmented literature on summer bridge programs (Sablan, 2014; Strayhorn, 2011; Swail, 2000). Program developers can use these models to organize the program's curriculum to include intentional interventions implemented during the summer bridge program to target specific noncognitive factors. The information can also be used to further develop future summer bridge programs to meet the needs of students.

This study provided a baseline of where students who participated in the program were in regard to noncognitive skills before enrolling at the institution as first-year students. Participants in the summer bridge program will continue to receive interventions through a cohort-based First-Year Experience course and living in a residential community together. Program staff can use this information to guide their interventions throughout the upcoming year. For example, this study found that there were no significant differences in learning strategies among summer bridge program participants. There is potential to include curriculum related to learning strategies in the students' First-Year Experience course to enhance students' understanding of effective skills that result in academic success. Additionally, through the residential community, there are opportunities to implement interventions to develop students' social skills and sense of belonging. Having a pre-established group with peer support can enhance a student's mindset regarding feelings of belongingness (Cohen & Garcia, 2008). Program staff can continue to plan recreation activities and team-building activities to encourage development in this area.

Implications for Practice

There is a great deal of variability in the definition of noncognitive factors (Sommerfeld, 2011) and understanding of levels of college readiness of noncognitive factors is often subjective. Therefore, when educators are designing and implementing interventions to enhance college readiness, there is a need for alignment between the program elements and noncognitive abilities that they are intended to develop to ensure consistency. For example, summer bridge programs often offer study hall sessions for students to complete homework and study with the goal of enhancing learning strategies. To better align the intervention with learning strategies, summer bridge programs can provide additional workshops on specific learning strategy areas, such as a workshop on time management that focuses on providing strategies for balancing time between academic tasks and extracurricular activities. Additionally, research has shown that self-efficacy can be developed through positive feedback (Bouffard-Bouchard, 1990), which increases persistence on a given task (Bandura, 1986). Summer bridge programs can design an element of the program for students to have a weekly meeting with an advisor to discuss student growth within the program and provide positive feedback. Course instructors can also receive training to learn positive feedback techniques to implement within the classroom that foster growth in student self-efficacy (Han et al., 2017).

Program elements also need to be aligned with the specific needs of the target student population. Various populations encounter different barriers and it is necessary to design programs around specific needs (Kodama et al., 2016) as opposed to designing a catchall program. For example, a summer bridge program that is intended to serve low

SES and rural students can provide financial aid workshops because oftentimes these student populations have less access to social capital and are unfamiliar with the financial aid process (Byrd & Macdonald, 2005; Cates & Schaeffe, 2011). Summer bridge programs are one type of pipeline intervention intended to aid in the transition from secondary to postsecondary education (Sablan, 2014). However, they are only one small piece of the larger college readiness puzzle. Developing a student's college readiness is a task that should be addressed well before a student graduates from high school. The following four practices have been suggested to increase college opportunities for underrepresented students (Wu, 2014). Aspects of these practices, including increasing academic support, providing social capital resources, and increasing access to college preparation resources are supported by findings from this study that demonstrated the effect of college readiness interventions on noncognitive factors, such as academic mindsets.

First, efforts can be made to connect more students to colleges where they can be successful. Efforts also need to be made to encourage completion once they are enrolled at a postsecondary institution. Often, underrepresented students, specifically low SES students, attend institutions where they academically undermatch (Smith, Pender, & Howell, 2013). More selective institutions have more resources to support students and have better education outcomes (Wu, 2014) indicating that low SES students are attending less selective institutions where they are not receiving the support they need to be successful. Low SES students are often unaware of their options, and practices intended to bridge the information gap can increase access to social capital (Lunceford et

al., 2017), which can lead to an increase in college knowledge (Conley, 2008) to better inform decisions regarding enrollment.

Second, efforts can be made to increase the range of students who are preparing for college. Providing interventions before students attend college has potential to bridge the gap in college access (Wu, 2014). A promising initiative is early-intervention programs that use cohort-based models to follow students through high school and college. For example, Elon Academy is a 7-year cohort-based program that low SES and first-generation students can begin during their sophomore year in high school. The program provides residential experiences, weekend programs for students and parents, access to college knowledge resources, standardized test preparation, academic coaching, social support, and mentoring. After students graduate from high school, Elon Academy provides transitional programming for students and families, as well as continued support while enrolled at a postsecondary institution (Elon University, n.d.). Chacon and colleagues (2011) reported that from 2007 to 2011, 95% of Elon Academy participants were enrolled at a postsecondary institution. This demonstrates the effectiveness of an intervention that begins before students attend a postsecondary institution in providing college access and opportunities for student populations that are underrepresented in higher education.

Third, interventions are needed to reduce inequities in college counseling and testing preparation (Wu, 2014). Students from disadvantaged backgrounds often rely on individuals at schools for college advising (Cates & Schaeffle, 2011). Each additional school counselor at a secondary institution increases 4-year college enrollment by 10%

(Hurwitz & Howell, 2013). However, due to the financial constraints of education, it is not always a feasible option to hire more school counselors. External organizations have made efforts to increase student access to college advising. The College Advising Corps (CAC) places trained, college graduates as full-time college advisors in high schools to target underrepresented students. Data from the organization shows that in schools where students meet with college advisors from CAC, students are 30% more likely to apply to college, 13% more likely to take a college entrance standardized test, and 27% more likely to complete the FAFSA (CAC, n.d.).

Last, strategies to improve college outcomes for students in need of remediation coursework and identifying gaps before students attend college are needed (Wu, 2014). Underrepresented students enroll in remedial courses at a higher rate (Attewell et al., 2006; Chen & Simone, 2016), and it has been shown that enrolling in remedial courses impacts college persistence and completion (Attewell et al., 2006; Kazis, 2006). Early assessment models are emerging that have improved college outcomes for students who need to take remedial courses. The alignment of assessments across K-12 education and postsecondary education can help reduce the need for remediation such that student gaps are identified early and interventions can be implemented before students enroll in college (Wu, 2014).

Implications for Research

The results of this study shed light on the difficulty in studying the application of college readiness interventions to enhance noncognitive components to understand how all factors fit together to impact student success (Farrington et al., 2013; Nagaoka et al.,

2013). To improve future research, it may be beneficial to utilize qualitative inquiry as well. Short-term interventions, such as summer bridge programs, have potential to enhance a student's overall academic success (Chickering & Reisser, 1993; Farrington et al., 2012), but there continues to be a lack of empirical evidence to support interventions that target noncognitive factors (Farrington et al., 2013).

When designing future studies to evaluate interventions such as a summer bridge program, researchers must consider context when interpreting results because “the impact of an intervention varies across students or schools” (Tipton & Olsen, 2018, p. 1). It would be of interest to conduct research to compare similarly structured summer bridge programs at various institutions to explore the impact of the educational context on college readiness variables as well as the impact of interventions. Researchers can also explore how similarly structured programs impact varying student populations across institutions. It would also be beneficial for future research to stratify the target population to further illuminate differences in measurement outcomes of college readiness assessments for varying populations (Tipton & Olsen, 2018). For example, studies can compare components of college readiness among varying races to target specific areas of strengths or weakness for certain populations.

Currently, the literature pertaining to the impact of summer bridge programs on noncognitive factors is fragmented and inconsistent (Sommerfeld, 2011). To enhance best practices for summer bridge programs, future research needs to focus on identifying which noncognitive factors can be developed through a short-term intervention. For example, academic perseverance factors enable students to focus on long-term goals

(Dweck et al., 2014) and interventions that extend beyond the scope of a summer bridge program may be necessary to fully develop this noncognitive domain. In comparison, academic mindsets, such as understanding the relevance of coursework to future plans, can be developed through a short-term intervention by utilizing career planning programming to create an understanding of specific preparation necessary for an intended career path.

In addition to studying the impact of student development over the course of a summer bridge program, future studies can conduct longitudinal studies to track college persistence and degree attainment for students who received a summer bridge program intervention. Walpole and colleagues (2008) and Wachen and colleagues (2016) conducted studies that reported persistence and retention rates through students' third year in college to demonstrate the effectiveness of summer bridge programs in producing positive educational outcomes.

Conclusion

Noncognitive factors play an imperative role in overall college readiness that goes beyond cognitive abilities due to the interactive nature of psychosocial development and cognitive development (Barsalou, 2010; Bransford et al., 2000; Evans et al., 2010). Currently, standardized assessments are used as the most convenient predictor of college readiness but fail to capture other facets of readiness related to noncognitive variables (Conley, 2008; Sedlacek, 2010; Zwick & Himelfard, 2011). This acts as a barrier for college access for underrepresented students in higher education who do not have the same opportunities in an educational setting as their peers (Zwick & Himelfard, 2011).

Moving forward, it is necessary to reform measurements of college readiness to create a more comprehensive method of determining college readiness. Student success is influenced by the intersection of demographic factors, context, and development (Evans et al., 2010; Strayhorn, 2011) and it is crucial to provide support and resources based on specific student needs.

Findings from this research suggest that short-term intervention like a summer bridge program have potential to increase a student's level of college readiness, which can result in increased college access. College readiness is particularly important for students from underrepresented populations because levels of readiness directly impact the potential for persistence and degree completion, which lead to social mobility and greater life outcomes (Lunceford et al., 2017). In the larger picture of college readiness, interventions that begin before students enroll at a postsecondary institution can have a positive impact on college outcomes (Wu, 2014). Demystifying the barriers related to college access can allow stakeholders to rethink college readiness and provide greater opportunities for students. Combining knowledge of noncognitive factors with other initiatives can have a positive impact on the landscape of higher education.

Increasing college opportunity is not just an economic imperative, but a reflection of our values. We need to reach, inspire, and empower every student, regardless of background, to make sure that our country is a place where if you work hard, you have a chance to get ahead. (Wu, 2014, p. 2)

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APPENDIX A

PERMISSION FROM PROGRAM DIRECTOR



May 22, 2018

APPROVAL LETTER

The Office of Research Integrity
The University of North Carolina at Greensboro
2720 MHRA Building
1111 Spring Garden Street
Greensboro, NC 27412

Subject: Site Approval Letter

The Office of Research Integrity, Institutional Review Board:

This letter acknowledges that I have received and reviewed a request by Ms. Holly Sheperd to conduct a research project entitled "An Analysis of the Difference in Noncognitive Factors of College Readiness of Students Before and After Participation in a Summer Bridge Program" at The University of North Carolina at Greensboro's Spartan Start Up Program in Greensboro, North Carolina and I approve this research project to be conducted at our facility.

When the researcher receives approval for her research project from the UNCG's Office of Research Integrity, Institutional Review Board/UNCG IRB, I agree to provide access for the approved research project. If we have any concerns or need additional information, we will contact UNCG's The Office of Research Integrity IRB at (336) 256-0253 or ori@uncg.edu

Sincerely,

A handwritten signature in black ink that reads "Joseph M. Green".

Joseph M. Green, Ph. D.
Conductor, Frontier Set Project & Executive Director
Retention, Progression, Completion and The Student Success Center
Phone:(336) 256-0114 E-mail: jmgreen4@uncg.edu

APPENDIX B**PERMISSION FROM ORIENTATION DIRECTOR****APPROVAL LETTER**

New Student Transition & First Year Experience
The University of North Carolina at Greensboro
201 Fomey Student Success Commons
Greensboro, NC 27412

Subject: SOAR Orientation Approval Letter

The Office of Research Integrity, Institutional Review Board:

This letter acknowledges that I have received and reviewed a request by Holly Shepherd to conduct a research project titled "An Analysis of the Difference in Noncognitive Factors of College Readiness of Students Before and After Participation in a Summer Bridge Program" at the University of North Carolina at Greensboro's SOAR orientation sessions in Greensboro, North Carolina and I approve this research project to be conducted during our programming.

When the researcher receives approval for her research project from the UNCG's Office of Research Integrity, Institutional Review Board/UNCG IRB, I agree to provide access for the approved research project. If you have any concerns or need additional information, we will contact UNCG's Office of Research Integrity at (336) 256-0253 or ori@uncg.edu.

Sincerely,



Kim Sousa-Peoples, Ph.D.
Director, New Student Transitions & First Year Experience
Email: k_sousap@uncg.edu

APPENDIX C

IN PERSON RECRUITMENT SCRIPT

In-Person Recruitment for Students

Participants are being sought for a research study exploring various noncognitive factors of college readiness. Examples of noncognitive factors includes but is not limited to class attendance, completing homework, time management, sense of belonging and academic confidence. There is no direct benefit to you for participating in this study, however it will help us better understand how to promote college readiness among students.

To take part in this study, you are asked to complete an online survey via Qualtrics. This survey is estimated to take around 10 to 15 minutes to complete. To be able to take part in this study, individuals must be an incoming student at UNCG who is at least 18 years of age.

Please note that your email address and/or name have not been provided to the research team. The survey is made available below via an anonymous link, as personal identifiers are not a part of the study.

Should you wish to participate in the study, I will send you an anonymous survey link and you can complete the survey now. Participation is voluntary. Choosing not to participate will not effect your participation in the summer bridge program.

If you have any questions about the study, please contact the doctoral student conducting research for a dissertation, Holly Shepherd (hashephe@uncg.edu) or one of the faculty advisors Dr. Laura Gonzalez (lmgonza2@uncg.edu).

Thank you for your consideration of this important study!

Approved IRB
6/1/18

APPENDIX D

EMAIL RECRUITMENT SCRIPT

E-mail Recruitment Script for Students

Participants are being sought for a research study exploring various noncognitive factors of college readiness. Examples of noncognitive factors includes but is not limited to class attendance, completing homework, time management, sense of belonging and academic confidence. There is no direct benefit to you for participating in this study, however it will help us better understand how to promote college readiness among students.

To take part in this study, you are asked to complete an online survey via Qualtrics. This survey is estimated to take around 10 to 15 minutes to complete. **To be able to take part in this study, individuals must be an incoming student at UNCG who is at least 18 years of age.**

Please note that your email address and/or name have not been provided to the research team. The survey is made available below via an anonymous link, as personal identifiers are not a part of the study.

Should you wish to participate in the study, **you can complete the survey in location TBD from 11:00am to 4:00pm on day 2 of your SOAR orientation session after you complete your course registration session.** Computers will be provided for you to take the online survey. Participation is voluntary. Choosing not to participate will not effect your enrollment at UNCG.

If you have any questions about the study, please contact the doctoral student conducting research for a dissertation, Holly Shepherd (hashephe@uncg.edu) or one of the faculty advisors Dr. Laura Gonzalez (lmgonza2@uncg.edu).

Thank you for your consideration of this important study!

Approved IRB
6/11/18

APPENDIX E

CONSENT STATEMENT

UNIVERSITY OF NORTH CAROLINA AT GREENSBORO

CONSENT TO ACT AS A HUMAN PARTICIPANT

Project Title: An Analysis of Differences in Noncognitive Factors of College Readiness of Students Before and After Participation in a University Summer Bridge Program

Research Team

Principal Investigator – Holly Shepherd (hashephe@uncg.edu) - Doctoral Student, Higher Education, University of North Carolina at Greensboro

Faculty Advisor – Dr. Laura Gonzalez (lmgonza2@uncg.edu) - Associate Professor, Teacher Education/Higher Education, University of North Carolina at Greensboro

What are some general things you should know about research studies?

You are being asked to take part in a research study. Your participation in the study is voluntary. You may choose not to join, or you may withdraw your consent to be in the study, for any reason, without penalty.

Research studies are designed to obtain new knowledge. This new information may help people in the future. There may not be any direct benefit to you for being in the research study. There also may be risks to being in research studies. If you choose not to be in the study or leave the study before it is done, it will not affect your relationship with the researcher or the University of North Carolina at Greensboro. Details about this study are discussed in this consent form. It is important that you understand this information so that you can make an informed choice about being in this research study.

If you have any questions about this study at any time, you should ask the researchers named in this consent form. Their contact information is above.

What is the study about?

This is a research project that through survey methods will compare the differences in noncognitive factors related to college readiness before and after student participation in a summer bridge program intended to increase overall college readiness. The project will explore academic behaviors, academic perseverance, academic mindsets, social skills and learning strategies. Examples of noncognitive factors includes but is not limited to class attendance, completing homework, time management, sense of belonging and academic confidence. Your participation is voluntary.

Why are you asking me?

You've been referred to this study by a campus-based professional. The requirements for participation in this study are that you are an incoming freshman student at UNCG who is at least 18 years of age and you qualify to participate in a summer bridge program hosted on campus based on admissions factors.

What will you ask me to do if I agree to be in the study?

This study will involve you taking an online survey via Qualtrics. The survey is estimated to take approximately 10 to 15 minutes for completion. You will be asked to complete the survey at two different time points. You will be asked to complete the first survey will be completed at the SOAR orientation session you are attending. You will be asked to complete the second survey during 3rd week in July after all orientation and summer bridge programs have ended.

What are the risks to me?

There are not foreseeable risks.

Approved IRB
6/1/18

If you have questions, want more information or have suggestions, please contact the research team (contact information included above). If you have any concerns about your rights, how you are being treated, concerns or complaints about this project or benefits or risks associated with being in this study please contact the Office of Research Integrity at UNCG toll-free at (855)-251-2351.

Are there any benefits to society as a result of me taking part in this research?

As a result of your participation, institutions of higher education may be able to learn more about the development of noncognitive factors of college readiness through a summer bridge program, which could help improve future programs and services for incoming students.

Are there any benefits to *me* for taking part in this research study?

There are no direct benefits to participants in this study.

Will I get paid for being in the study? Will it cost me anything?

You will not be compensated for participating in this study. There are no costs to you or payments made for participating in this study.

How will you keep my information confidential?

Information for this study will be collected via an anonymous Qualtrics survey link that is unable to track identifying information of participants. Once collected, data will be stored in secure files on the UNCG Box system for 5 years and then permanently deleted. Data will only be shared with members of the research team. For more on Qualtrics security and privacy efforts, please visit <https://www.qualtrics.com/security-statement/>. Absolute confidentiality of data provided through the Internet cannot be guaranteed due to the limited protections of Internet access. Please be sure to close your browser when finished so no one will be able to see what you have been doing. Data collected may be disseminated out UNCG for journal articles and presentations, but no identifying information will be used.

What if I want to leave the study?

You have the right to refuse to participate or to withdraw at any time, without penalty. If you do withdraw, it will not affect you in any way. If you choose to withdraw, you may request that any of your data that has been collected be destroyed unless it is in a de-identifiable state. Choosing not to participate or withdrawing from the study will in no way effect your ability to participate in the summer bridge program. The investigators also have the right to stop your participation at any time. This could be because you have had an unexpected reaction, or have failed to follow instructions, or because the entire study has been stopped.

What about new information/changes in the study?

If significant new information relating to the study becomes available which may relate to your willingness to continue to participate, this information will be provided to you.

Voluntary Consent by Participant:

By completing this survey you are agreeing that you read, or it has been read to you, and you fully understand the contents of this document and are openly willing consent to take part in this study. All of your questions concerning this study have been answered. By selecting "Yes" below, you are confirming that you are 18 years of age or older and are agreeing to participate, in this study described above.

Approved IRB

6/1/18

APPENDIX F

BEL-S FULL SCALE



The University of Chicago
 Urban Education Institute
 1315 East 60th Street
 Chicago, Illinois 60637
consortium.uchicago.edu

BELS –S - Constructs

CLASSROOM SPECIFIC

CLASSROOM CONDITIONS - **CLCOND**

WORK - **WORK**

WORK COMMUNITY BASED - **WOCO**

ACADEMIC BEHAVIORS

LATE - **LATE**

SKIP - **SKIP**

HOMEWORK - **HWRK**

PARTICIPATION, STUDYING - **APAS**

LEARNING STRATEGIES

ORGANIZATION – TIME MANAGEMENT - **ORTM**

MONITORING STRATEGIES - **MONI**

ACADEMIC MINDSETS

ACADEMIC IDENTITY - **ACID**

THEORIES OF INTELLIGENCE - **TOI**

PERFORMANCE AVOID - **PEAV**

SELF EFFICACY - **SEFF**

RELEVANCE TO FUTURE **FUT2, FUT4**

MOTIVATION - **MOTI**

PERSEVERANCE

SELF REGULATION - **SERE**

ACADEMIC DELAY OF GRATIFICATION – **ADOG**

GRIT – **GRIT**

ADDITIONAL

CLASSROOM COMPARISON – **CLCO**

SCHOOL BELONGING – **SBEL**

BELONGING UNCERTAINTY – **BELU**

FUTURE PLANS – **PLN1, PLN2**

ATTENDANCE – Absence - **ABSE**

Introduction
Dear Student,

Welcome to the ***Becoming Effective Learners Survey!*** This survey was created by researchers at the University of Chicago and we are asking you to be in a research study. We do research studies to learn more about how the world works and why people act the way they do. In this study we are investigating how young people think about school and about themselves as students in order to help schools do a better job of meeting the needs of adolescent learners.

What we are asking you to do:

We would like to ask you to complete this online survey. Please think about each question and choose the answer that best expresses your thoughts and feelings. On the survey, you can skip any question if it makes you uncomfortable.

Do I have to be in this study?

You do not have to participate in this study and take this survey. It is up to you. You can say no now or you can even change your mind later. No one will be upset with you if you decide not to be in this study.

Your grades and your relationship with your school, teachers and classmates will not be affected if you choose to not participate in the study or if you choose to stop participating at any point. No one at your school will know how you answer these questions, and none of your responses will be used against you, your teachers, or other students – so **please SPEAK YOUR TRUTH!**

Will being in this study hurt or help me in any way?

Being in this study will bring you no harm. There are no direct benefits to you for participating in this study. It will hopefully help us learn more about your classroom and school.

What will you do with information about me?

We will be very careful to keep your answers to the survey questions private. Before and after the study we will keep all information we collect about you locked up and password protected.

There is no penalty if you stop in the middle of the survey.

If you have questions about the study, contact:

Faye Kroshinsky
University of Chicago
Phone number: (773) 834-4280
faye@uchicago.edu

If you have questions about your rights in the study, contact:

Social & Behavioral Sciences Institutional Review Board

University of Chicago

Phone number: (773) 834-7835

Email address: sbs-irb@uchicago.edu

If you do not want to take the survey please close the computer

Click the Next button to start the survey.

Thank you for your participation! Click the Next button to start the survey.

STUDENT_ID

Please enter your student ID (If you do not know your student ID please click here)

DOB

Please enter your birthdate mm/dd/yyyy

For example: March 3, 1997 would be 03/03/1997; November 20, 2001 would be 11/20/2001.

1) What grade are you in? G_Q1_GRAD1

6th

7th

8th

9th

10th

11th

12th

Other

**In this survey we are going to ask you about one of the classes you are currently taking.
Please think about the specific class we are asking about when you choose your answers.**

Classroom Conditions (CLCOND) T1_Q2_CLCOND

2) How TRUE are the following about your [TARGET 1] class:

Each class period, this teacher makes sure we know what we're supposed to learn that day.

T1_Q2_CLCOND1

Our teacher makes it clear to students how the work we do in class connects to bigger learning goals.

T1_Q2_CLCOND2

This teacher helps us see our progress as we get better and learn more. T1_Q2_CLCOND3

When we are learning something new, this teacher helps us understand how it fits in with what we've learned before. T1_Q2_CLCOND4

This teacher notices if I have trouble learning something. T1_Q2_CLCOND5

The teacher says it is more important to try in this class than to get things right. T1_Q2_CLCOND6

This teacher explains things in a different way if we don't understand it the first time.

T1_Q2_CLCOND7

This teacher knows my strengths and weaknesses in this class. **T1_Q2_CLCOND8**

Not at all true, A little true, Somewhat true, Mostly true, Completely true

Classroom Conditions (CLCOND) **T1_Q3_CLCOND**

3) How TRUE are the following in your [TARGET 1] class:

The class is organized in a way that actually helps students do better. **T1_Q3_CLCOND9**

This teacher emphasizes that it is okay to make mistakes so we can learn from them.

T1_Q3_CLCOND10

This teacher helps me understand what went wrong when I make a mistake. **T1_Q3_CLCOND11**

Most of my classmates encourage each other to work hard in this class. **T1_Q3_CLCOND12**

This teacher is really good at relating to kids. **T1_Q3_CLCOND13**

This teacher connects what we are learning in class to real life. **T1_Q3_CLCOND14**

This teacher asks for our input about what we want to learn. **T1_Q3_CLCOND15**

The teacher makes what we are learning really interesting. **T1_Q3_CLCOND 16**

Not at all true, A little true, Somewhat true, Mostly true, Completely true

Work (WORK) **T1_Q4_WORK3**

4) In a typical week in your [TARGET 1] class, HOW MUCH TIME are students expected to:

01 Work by yourself. **T1_Q4_WORK11**

02 Work in pairs or in a small group (2-5 students). **T1_Q4_WORK12**

03 Work in a larger group (more than 5 students but not the whole class). **T1_Q4_WORK13**

04 Participate in a whole class activity. **T1_Q4_WORK14**

05 Sit and listen to the teacher. **T1_Q4_WORK15**

Never, Once in a while, About half the time, Most of the time, Always

Work Community Based (WOCO) **T1_Q5_WOCO**

5) How often do you have opportunities to do the following for your [TARGET 1] class:

Present my work to an audience of community members or other adults (other than your teacher).

T1_Q5_WOCO1

Work on a project that addresses a community problem or that seeks to make a real change in the world. **T1_Q5_WOCO2**

Spend all or part of the school day away from the school in order to learn more about what you are studying. **T1_Q5_WOCO3**

Never, Once or twice in the school year, Every few months, About once a month, Almost every week

Class Comparison (CLCO) **T1_Q24_CLCO**

- 6) How would you RATE your [TARGET 1] class, compared to the other classes you are currently taking? T1_Q24_CLCO1

This is my worst class, This class is worse than most of my other classes, This class is about the same as my other classes, This class is better than most of my other classes, This is my best class

In the next set of questions we are going to ask about your experience in school generally. When you choose an answer please think about your experience across all the classes you take.

Behaviors

Late

- 7) How often are you LATE for school: T1_Q6_LATE1

I am late AT LEAST 1 DAY every WEEK, I am late about 2-3 DAYS every MONTH, I am late about 1 DAY every MONTH, I am late LESS THAN once a MONTH, I am NEVER LATE to school

Homework T1_Q8_HWRK1

- 8) How often do you complete all of your homework ? T1_Q8_HWRK1

Never, Rarely, Less than half the time, Half the time, More than half the time, Most of the time, Always, My teachers don't assign homework

Homework T1_Q9_HWRK2

- 9) Out of every 10 homework assignments you get, how many are you likely to complete? T1_Q9_HWRK2

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, My teachers don't assign homework

Participation, Studying (APAS) T1_Q10_APAS

- 10) Across all of your classes, how OFTEN do you:

Do the readings or other assigned work to prepare for class. T1_Q10_APAS1

Turn in assignments on the due date. T1_Q10_APAS2

Actively participate in class. T1_Q10_APAS3

Have all of my class materials with me. T1_Q10_APAS4

Do more than what is expected of me. T1_Q10_APAS5

Spend extra time outside of class to make sure I am well-prepared for each lesson. T1_Q10_APAS6

Never, Once in a while, About half the time, Most of the time, Always

Learning strategies

Organization/Time management (ORTM) T1_Q11_ORTM

11) How TRUE are the following about you:

I keep track of my school assignments so I know when to turn them in. T1_Q11_ORTM1

I manage my time well enough to get all my schoolwork done. T1_Q11_ORTM2

I keep my schoolwork well organized. T1_Q11_ORTM3

I have a very effective system for managing all the things I have to do for school..

T1_Q11_ORTM4

Not at all true, A little true, Somewhat true, Mostly true, Completely true

Monitoring Strategies (MONI) T1_Q12_MONI

12) How OFTEN do you do the following for your current classes?

When I do work for my classes, I stop to check whether I understand what I'm doing.

T1_Q12_MONI1

I put what I am learning into my own words to help me understand it. T1_Q12_MONI2

I review my notes carefully to make sure that I understand them. T1_Q12_MONI3

I quiz myself on the material from class to prepare for a test. T1_Q12_MONI4

Never, Once in a while, About half the time, Most of the time, Always

Mindsets

Academic Identity: (ACID) T1_Q13_ACID

13) How TRUE are the following about you:

Doing well in school is an important part of who I am. T1_Q13_ACID1

Getting good grades is one of my main goals this year. T1_Q13_ACID2

I am the kind of person who takes pride in doing my best in school. T1_Q13_ACID3

Not at all true, A little true, Somewhat true, Mostly true, Completely true

Growth Mindsets: Theories of intelligence (TOI) T1_Q14_TOI

14) How TRUE are the following about you:

My intelligence is something that I can't change very much. T1_Q14_TOI1

Challenging myself won't make me any smarter. T1_Q14_TOI2

There are some things I am not capable of learning. T1_Q14_TOI3

If I am not naturally smart in a subject, I will never do well in it. T1_Q14_TOI4

I can learn new things, but that won't change how smart I am. T1_Q14_TOI5

Not at all true, A little true, Somewhat true, Mostly true, Completely true

Performance Avoidance (PEAV) T1_Q15_PEA

15) How TRUE are the following about you

I don't participate in class discussions because I'm afraid I will sound stupid. **T1_Q15_PEA1**
 I would rather do easy work that I can do well than challenging work where I might learn more.

T1_Q15_PEA2

I don't ask questions in class because I don't want people to think I'm dumb. **T1_Q15_PEA3**

I stop doing schoolwork if I feel like I can't do it well. **T1_Q15_PEA4**

Not at all true, A little true, Somewhat true, Mostly true, Completely true

Self-efficacy (SEFF) T1_Q16_SEFF

16) How CONFIDENT are you about the following:

I have what it takes to be successful in school. **T1_Q16_SEFF1**

I can understand the material in my classes even when it's difficult. **T1_Q16_SEFF2**

I can master the hardest topics in my classes. **T1_Q16_SEFF3**

I can meet all the learning goals my teachers set. **T1_Q16_SEFF4**

I can do well on future assignments. **T1_Q16_SEFF5**

Not at all confident, Only a little confident, Somewhat confident, Mostly confident, Completely confident

Belonging (BELO) T1_Q17_BELO

17) How true are the following:

I fit in at my school. **G_Q48_SBEL1**

I feel like people at my school care if I'm not there. **G_Q48_SBEL2**

I feel proud to be part of my school. **G_Q48_SBEL3**

My teachers take the time to get to know me. **G_Q48_SBEL4**

Not at all true, A little true, Somewhat true, Mostly true, Completely true

Relevance to Future HS (FUT2) T1_Q18_FUT2

18) How TRUE are the following statements:

My classes help prepare me for what I plan to do in life. **T1_Q18_FUT2_1**

My classes are teaching me valuable skills. **T1_Q18_FUT2_2**

Working hard in my classes now will help me get a good job later. **T1_Q18_FUT2_3**

What I am learning in my classes now is necessary for my success in the future. **T1_Q18_FUT2_4**

What I am learning in school will help me make a difference in the world. **T1_Q18_FUT2_5**

Not at all true, A little true, Somewhat true, Mostly true, Completely true

Relevance to Future ES (FUT4) T1_Q19_FUT4

19) How TRUE are the following statements:

My classes are getting me ready for high school. T1_Q19_FUT4_1

My classes are teaching me valuable skills. T1_Q19_FUT4_2

Working hard in my classes now will help me do well when I get to high school. T1_Q19_FUT4_3

What I am learning in my classes now is necessary for my success in the future. T1_Q19_FUT4_4

What I am learning in school will help me make a difference in the world. T1_Q19_FUT4_5

Not at all true, A little true, Somewhat true, Mostly true, Completely true

Motivation (MOTI) T1_Q20_MOTI

20) Overall, how MOTIVATED are you to WORK HARD in school? T1_Q20_MOTI

Not at all motivated, Only a little motivated, Somewhat motivated, Very motivated, Extremely motivated

Perseverance

Self-Regulation (SERE) T1_Q21_SERE

21) How well do these DESCRIBE YOU in school:

I have trouble paying attention in class. T1_Q21_SERE1

I give up doing an assignment if it is taking too long. T1_Q21_SERE2

I stop trying if I get discouraged while doing schoolwork. T1_Q21_SERE3

Not at all like me, Not much like me, Somewhat like me, Mostly like me, Completely like me

Academic Delay of Gratification (ADOG) T1_Q22_ADOG

22) How well do these DESCRIBE YOU when you have homework:

I finish all of my homework before I do things for fun. T1_Q22_ADOG1

I put time into my homework even when there are more interesting things to do. T1_Q22_ADOG2

I stay focused when I'm doing my homework. T1_Q22_ADOG3

When I have something else I really want to do, I wait until after my homework is done.

T1_Q22_ADOG4

I avoid people or things that might distract me until I finish my homework. T1_Q22_ADOG5

Not at all like me, A little like me, Somewhat like me, Mostly like me, Completely like me, I never have homework

Grit (GRIT) T1_Q23_GRIT

23) How TRUE are the following about you:

- I am a hard worker. **T1_Q23_GRIT1**
 I finish whatever I begin. **T1_Q23_GRIT2**
 I continue steadily towards my goals. **T1_Q23_GRIT3**
 I don't give up easily. **T1_Q23_GRIT4**
 I don't stop until I complete what I set out to do. **T1_Q23_GRIT5**

Not at all true, A little true, Somewhat true, Mostly true, Completely true

Belonging Uncertainty (BELU) G_Q49_BELU

24) When you think about next year, how true are the following:

- Sometimes I worry that I will not belong in college. **G_Q49_BELU1**
 I am anxious about fitting in at college. **G_Q49_BELU2**
 I feel confident that I will feel like I belong in college. **G_Q49_BELU3**

Not at all true, A little true, Somewhat true, Mostly true, Completely true

25) When you think about next year, how true are the following:

- 01 Sometimes I worry that I will not belong in [12th, 11th, 10th, 9th, 8th, 7th] grade. **G_Q49_BELU1**
 02 I am anxious about fitting in at [12th, 11th, 10th, 9th, 8th, 7th] grade. **G_Q49_BELU2**

Not at all true, A little true, Somewhat true, Mostly true, Completely true

Future Plans (PLN1) G_Q50_PLN1

26) What do you think you will do in the year after high school:

- Get a job **G_Q50_PLN1_1**
 Go to a 4-year college **G_Q50_PLN1_2**
 Go to a 2-year college **G_Q50_PLN1_3**
 Join the military **G_Q50_PLN1_4**
 I don't know yet **G_Q50_PLN1_5**

Future Plans (PLN2) G_Q51_PLN2

27) What is the highest level of schooling you plan to complete:

- High school **G_Q51_PLN2_1**
 Certificate program (1-2 years of college) **G_Q51_PLN2_2**
 Associate's degree (2 years of college) **G_Q51_PLN2_3**
 Bachelor's degree (4 years of college) **G_Q51_PLN2_4**
 Master's degree (4 years of college PLUS 1-2 years of graduate school) **G_Q51_PLN2_5**
 Doctoral degree (4 years of college PLUS 3-6 years of graduate school) **G_Q51_PLN2_6**
 I don't know yet **G_Q51_PLN2_7**

Attendance – Absence (ABSE) **G_Q52_ABSE****28) How often are you ABSENT from school: G_Q52_ABSE1**

I miss AT LEAST 1 DAY every WEEK, I miss about 2-3 DAYS every MONTH, I miss about 1 DAY every MONTH, I'm absent LESS THAN once a MONTH, I am NEVER ABSENT from school

APPENDIX G

PERMISSION FOR FIGURE 1 USE

UNCG Mail - Permission for figure use

4/30/18, 5:46 PM

Holly Shepherd <hashephe@uncg.edu>

Permission for figure use

2 messages

Holly Shepherd <hashephe@uncg.edu>
To: Conley@uoregon.edu

Sat, Mar 3, 2018 at 11:15 AM

I am currently a doctoral student at the University of North Carolina at Greensboro and I am completing a dissertation on the topic of summer bridge programs and college readiness. I am writing to request permission to use the college readiness figure that demonstrates the four facets in your publication below.

Conley, D. T. (2008). Rethinking college readiness. *New Directions for Higher Education*, 2008(144), 3–13.

<https://doi.org/10.1002/he.321>

Please let me know if I can have permission to use this figure in my dissertation. Thank you in advance for your consideration.

Holly Shepherd
PhD Student in Higher Education
hashephe@uncg.edu

David Conley <conley@uoregon.edu>
To: Holly Shepherd <hashephe@uncg.edu>

Sun, Mar 4, 2018 at 6:34 PM

Sure. I've also attached an updated version as well. Please cite as © 2018 David T Conley. Reprinted by permission.

On Mar 3, 2018, at 8:15 AM, Holly Shepherd <hashephe@uncg.edu> wrote:

I am currently a doctoral student at the University of North Carolina at Greensboro and I am completing a dissertation on the topic of summer bridge programs and college readiness. I am writing to request permission to use the college readiness figure that demonstrates the four facets in your publication below.

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Holly Shepherd
PhD Student in Higher Education
hashephe@uncg.edu

APPENDIX H

PERMISSION FOR BEL-S USE AND FIGURE 2 USE

UNCG Mail - Permission for BEL-S

9/17/18, 7:41 PM



Holly Shepherd <hashephe@uncg.edu>

Permission for BEL-S

7 messages

Holly Shepherd <hashephe@uncg.edu>
To: camillef@uchicago.edu

Tue, Mar 20, 2018 at 3:09 PM

Dr. Farrington,

I am currently a doctoral student in higher education at UNC-Greensboro and I am in the process of writing my dissertation. My focus is on the noncognitive factors of college readiness. I have been reading your research and I am interested in potentially using the *Becoming Effective Learners* survey as my instrument. Would it be possible for me to preview the questions? If I decided that the instrument aligns with my study, what are the steps I need to take to get permission to use the instrument? Thank you in advance for your consideration and I look forward to any information you are able to provide.

Holly Shepherd
hashephe@uncg.edu
PhD Student-Higher Education

Camille Farrington <camillef@uchicago.edu>
To: Holly Shepherd <hashephe@uncg.edu>
Cc: Faye S Kroshinsky <faye@uchicago.edu>

Mon, Mar 26, 2018 at 3:15 PM

Hi Holly,

It was nice talking with you this afternoon. You have permission to use the BEL survey as part of your dissertation research. We ask that you cite the survey as the *Becoming Effective Learners Student Survey (BEL-S)* from the University of Chicago Consortium on School Research. We'd also like you to share your final results with us by sharing a copy of your finished dissertation.

Attached is the *Becoming Effective Learners - Student Survey* codebook for the global version of the survey, meaning that the questions are asked about the student "in general" rather than about the students' attitudes and behaviors in a specific class. (Note that the opening questions on pp.3-4 DO ask about a specific class. You probably won't use those questions, given the focus of your study. The remainder of the survey measures ask the student about noncog factors in school generally.) Note that context matters a lot in these questions. Students moving from high school to college in a summer bridge program will likely be thinking about themselves in high school as their frame of reference for responding to questions in the "pre" survey, and they might be thinking about themselves in the summer bridge program as they respond to questions in the "post" survey. You might want to intentionally cue them to think about one particular context or another at each time point if you want some control over what they are using as a frame of reference.


Thanks for your interest, and best wishes in your research!

Camille

[Quoted text hidden]

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Camille A. Farrington, Ph.D.
Managing Director, Senior Research Associate
University of Chicago
Consortium on School Research
1313 E. 60th Street
Chicago, IL 60637
(773) 702-9846

 **BEL-S Survey_Time5_Global_OneClass_clean_copy_1_25_2016.pdf**
951K

Holly Shepherd <hashephe@uncg.edu>
To: Camille Farrington <camillef@uchicago.edu>
Cc: Faye S Kroshinsky <faye@uchicago.edu>

Wed, Jun 27, 2018 at 12:32 PM

Dr. Farrington,

Thank you again for allowing me to utilize the BEL-S for my dissertation research. As I am finalizing parts of my dissertation, I came across a few things I wanted to ask.

1. For the attached figure, I will need your permission to include this in my literature review. Is this a possibility?
2. I have read your report *Becoming Effective Learners Survey Development Project* (2013) but I am having trouble finding a report on the results of the reliability/validity of the instrument. Will you direct me to where I can find this information?

Thanks in advance for any guidance,
Holly Shepherd

[Quoted text hidden]



Farrington graph.png
146K

Holly Shepherd <hashephe@uncg.edu>
To: Camille Farrington <camillef@uchicago.edu>
Cc: Faye S Kroshinsky <faye@uchicago.edu>

Tue, Aug 14, 2018 at 1:18 PM

Hi Dr. Farrington,

I wanted to check in about permission for figure use and reliability/validity information about the survey instrument. I appreciate any help you are able to provide!

Thanks,
Holly Shepherd

[Quoted text hidden]

Holly Shepherd <hashephe@uncg.edu>
To: Camille Farrington <camillef@uchicago.edu>
Cc: Faye S Kroshinsky <faye@uchicago.edu>

Wed, Sep 5, 2018 at 8:41 AM

Dr. Farrington,

I am checking in to see if I am able to get permission to use the previously attached figure from your research articles in my dissertation. Let me know if this is a possibility.

UNCG Mail - Permission for BEL-S

9/17/18, 7:41 PM

Thanks,
Holly Shepherd
[Quoted text hidden]

Faye Kroshinsky <faye@uchicago.edu>
To: Holly Shepherd <hashephe@uncg.edu>
Cc: Camille Farrington <camillef@uchicago.edu>

Wed, Sep 5, 2018 at 8:53 AM

Hi Holly,

I don't have a figure attached in my email but if it is a figure from the *Teaching Adolescents to Become Learners: The Role of Noncognitive Factors in Shaping School Performance*, you may use it just please cite the report. Thank you.

Faye Kroshinsky
[Quoted text hidden]

Holly Shepherd <hashephe@uncg.edu>
To: Faye Kroshinsky <faye@uchicago.edu>

Wed, Sep 5, 2018 at 9:38 AM

Great, thank you!
[Quoted text hidden]